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Statewide Angling Pressure

Mail Survey

1982 - 1985

Prepared by:

Robert C. McFarland

Montana Department of Fish, Wildlife and Parks

April, 1989

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ABSTRACT

A statewide angling pressure mail survey was started in May of 1982 and continued for four years until March, 1986. The estimates were based upon the Department's license year. Questionnaires were mailed on a stratafied basis usually at monthly or twice a month intervals. For the years 1982, 1983 and 1984 approximately 20,000 surveys were sent annually. In 1985 approximately 45,000 surveys were sent. Estimates were produced for residents and nonresidents by individual waters. The number of waters on which estimates of angling pressure were made was: 1982 - 1,408 waters; 1983 - 1,206 waters; 1984 - 1,135 waters; and 1985 - 1,157 waters.

In 1982 anglers exerted 2,723,713 angler days on Montana waters. 77.3% of this pressure was by residents and 22.7% by nonresidents. Salmonid waters accounted for 88.1% of the statewide pressure. During the "summer" season anglers exerted 2,001,386 (73.5%) angler days of pressure. The "winter" season accounted for 722,315 (26.5%) angler days of pressure.

In 1983 anglers exerted 2,624,708 angler days on Montana waters. 79.3% of this pressure was by residents and 20.7% by nonresidents. Salmonid waters accounted for 86.8% of the statewide pressure. During the "summer" season anglers exerted 1,965,010 (74.9%) angler days of pressure. The "winter" season accounted for 659,701 (25.1%) angler days of pressure.

In 1984 anglers exerted 2,197,402 angler days on Montana waters. 83.5% of this pressure was by residents and 16.5% by nonresidents. Salmonid waters accounted for 89.7% of the statewide pressure. In 1984 harvest and catch rates were included in the estimates. The average catch rate for the state was 1.34 fish/hour. A total of 6,578,000 fish were harvested. During the "summer" season anglers exerted 1,636,812 (74.5%) angler days of pressure. The average catch rate during the "summer" season was 1.34 fish/hour. Overall the harvest was 4,816,884 fish for this season. The "winter" season accounted for 610,070 (27.8%) angler days of pressure. The average catch rate during the "winter" season was 1.65 fish/hour. Overall the harvest was 2,220,075 fish for this season.

In 1985 anglers exerted 2,443,438 angler days on Montana waters. 78.4% of this pressure was by residents and 21.6% by nonresidents. Salmonid waters accounted for 89.7% of the statewide pressure. The average catch rate for the state was 1.54 fish/hour. A total of 7,254,749 fish were harvested. During the "summer" season anglers exerted 1,748,089 (71.5%) angler days of pressure. The average catch rate during the "summer" season was 1.56 fish/hour. Overall the harvest was 4,777,808 fish for this season. The "winter" season accounted for 489,337 (20.0%) angler days of pressure. The average catch rate during the "winter" season was 1.63 fish/hour. Overall the harvest was 1,852,809 fish for this season.

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INTRODUCTION

The Montana Department of Fish, Wildlife and Parks has conducted statewide angling mail surveys in the past. Bishop (1959, 1960 & 1961) conducted the first recorded mail survey of fishing pressure on a statewide basis for Montana. He found that residents fished 1,323,129 angler days, nonresident season license holders fished 60,632 angler days, and nonresident 6-day permit holders fished 40,933 angler days for the 1958 season. In 1959 residents fished 1,345,000 angler days, nonresident season license holders fished 54,000 angler days, and nonresident 6-day permit holders fished 121,000 angler days. In 1960 the third annual survey was conducted and residents fished 1,356,000 angler days, nonresident season license holders fished 53,000 angler days, and nonresident 7-day permit holders fished 112,000 angler days.

In 1968 the statewide angling pressure mail survey was again initiated by Holton (1970). He found residents had fished 1,519,126 angler days, nonresident season license holders fished 69,653 angler days, and nonresident 6-day permit holders fished 161,772 angler days. Holton (1971) conducted another statewide survey for the 1969 license year. No results were reported because it was felt they were too high do to sampling problems.

In 1975, Gaffney (unpublished data) conducted a statewide survey of angling pressure by mail. He found residents fished a total of 2,314,030 angler days and nonresidents 508,034 angler days for a statewide total of 2,822,093 angler days. An attempt was made to continue that statewide survey in 1976 using the 1975 mailing lists. This did not provide adequate samples for nonresidents, so only resident pressure was obtained.

Holton (1974) stated,

> "The lack of up-to-date fishing pressure information on individual waters has been a handicap in fisheries management. It is recommended that (the) evaluation of (a) mail survey to fill this need be accomplished as soon as feasible."

The surveys were once again started in 1982 with the understanding they would be run for more than a couple of years and then dropped indefinitely. The technique used was similiar to that described by Holton (1974).

METHODS

Statewide angling mail pressure surveys began in the spring of 1982 and estimates made for four consecutive years. Each pressure year corresponded to the Department's license year (Table 1). In 1984 the license year changed to start on March 1st and continue through the end of February of the following year.

Table 1. Period of coverage for statewide fishing pressure surveys from 1982 through 1986

License year	Period of coverage
1982	May 1, 1982 through April 30, 1983
1983	May 1, 1983 through April 30, 1984
1984	March 1, 1984 through February 28, 1985
1985	March 1, 1985 through February 28, 1986

Samples were drawn from Department copies of the fishing licenses. In 1982 and 1983 there were four major types of fishing licenses available to residents: a season license, a combo license, a sportsman's license, and a "pioneer" license. A season license was required for those resident anglers between the ages of 15 and 61 inclusive (a conservation license is required as a prerequisite to purchasing any fishing license). The combo license combines a season fishing license and a conservation license. A sportsman's license provides a deer "A" tag, elk tag, bear tag, conservation license, a game bird stamp and a fishing license. Residents 62 years of age and older are entitled to fish by purchasing a conservation license. All conservation licenses were hand sorted on age to identify these "pioneers".

In 1982 and 1983, nonresidents, 15 years of age and older, had to purchase either a season license, a combo license, big game license, or a 2-day permit to fish on Montana. The combo license combines a season fishing license and a conservation license. The big game license combines a deer "A" tag, an elk tag, a black bear tag, game bird stamp, and fishing license. The 2-day permit is a stamp that is affixed to the conservation license and allows the nonresident to fish for 2 consecutive days. As many 2-day stamps as desired can be purchased. Nonresidents under the age of 15 need not purchase a license to fish but must be accompanied by an adult with a valid license.

In 1984 and 1985 the license structure and year were altered slightly (Table 1). Residents between the ages of 12 and 14 inclusive, were required to purchase a conservation license to fish. These "youth" licenses were hand sorted and combined with the "pioneer" file.

For each of the four years, licenses were randomly stored in computer card filing cabinets by type of license. A systematic random sampling scheme was used to sample each license type. Each drawer of licenses were measured and the total length of each license type calculated. The total length was then divided by the number of licenses that were to be pulled for that sampling period. This produced a number

called the sampling interval. A random starting point within the sampling interval was selected and a license pulled at every sampling interval from each of the drawers.

From each group of licenses, name, address, city, state, and zip code were key punched. FORTRAN computer programs were written to add wave number (stratum), type of license and sequential serial numbers for classifying the data during analysis. Edit routines were run on the sample to determine valid zip codes and cities within the state. Mailing labels were produced and affixed to each questionnaire. The questionnaire along with a cover letter, a map, and a return envelope were stuffed into window envelopes and mailed (see appendix for examples). All surveys for 1982, 1983, and 1984 were mailed first class pre sort. In 1985 surveys were mailed bulk rate.

Residents were lumped into two categories based upon types of questionnaire sent. The season, combo and sportsman licenses were one group, with the "pioneer" and "youth" licenses forming the other group. Nonresidents were also split into two categories. The season and combo licenses forming one group and the 2-day permit holders forming the other. Nonresident 2-day license holders could not be sampled directly, so nonresident conservation license holders were sampled and questions asked to ascertain if they were valid 2-day permit holders. These questionnaires were usually sent out in January since less than 7% of the 2-day permits are remitted after this date. The questionnaire asked about their entire year of fishing in Montana. Gaffney (1982) sampled the 17,000 nonresident big game license holders in 1980 and found that 29.6% had fished while in Montana. They averaged 3.9 days fishing per person which would account for nearly 20,000 man days of use. This is less than 1% of the total pressure in the state. Due to budgetary constraints and the small amount of pressure, the big game license holders were not included in the nonresident sampling for 1982 - 1985.

Sampling was done on a stratified basis. Strata (waves) varied from year to year (Table 2), depending on whether monthly or twice-a-month waves were used.

In 1982 and 1983, May and June were combined into one wave since the number of licenses available for sampling in May was limited. The 2-day nonresident permit holders were treated as a separate wave since they were sampled on an annual basis.

Table 2. Period of time covered for waves for the 4 years of the statewide angling survey

Wave	1982	1983	1984	1985
1	May/June 82	Jan 84	Mar1 84	Mar 85
2	Jul 82	Feb 84	Mar2 84	Apr 85
3	Aug 82		Apr1 84	May 85
4	Sep 82		Apr2 84	Jun1 85
5	Oct 82		May 84	Jun2 85
6	Nov 82	May/June 83	Jun1 84	Jul1 85
7	Dec 82	Jul 83	Jun2 84	Jul2 85
8	Jan 83	Aug 83	Jul1 84	Aug1 85
9	Feb 83	Sep 83	Jul2 84	Aug2 85
10	Mar 83	Oct 83	Aug1 84	Sep1 85
11	Apr 83	Nov 83	Aug2 84	Sep2 85
12		Dec 83	Sep1 84	Oct1 85
13	2-day	2-day	Sep2 84	Oct2 85
14		Mar1 84 [1]	Oct1 84	Nov 85
15		Mar2 84 [1]	Oct2 84	Dec 85
16		Apr1 84	Nov 84	Jan 86
17		Apr2 84	Dec 84	Feb 86
18			Jan 85	
19			Feb 85	
24			2-day	2-day

[1] Mar1 = March 1st - March 15th
Mar2 = March 16th - March 31st
etc.

In 1984 the start of the license year was changed from May 1 to March 1. To cover the overlap between the 1983 and 1984 license year, anglers were allowed to fish on either their 1983 or 1984 license. The four waves (Mar1 84 - Apr2 84) covered during this period were included in both the 1983 and 1984 pressure estimates so each year would cover a full 12 month period. To improve memory bias (forgetting of facts due to time passage between when the fishing occurred and when the questionnaire was received), surveys were sent out twice a month starting in 1984. The first period covered from the 1st to the 15th of the month. The second covered from the 16th to the end of the month. The winter periods remained on a monthly basis.

Authorized private dealers sell fishing licenses throughout the state. In addition the seven regional headquarters and the Helena office sell licenses. All licenses are to be remitted to the licensing bureau in Helena by the 10th of the following month of the sale. Each license is a five-part form. In 1982 and 1983, the original remained with the angler purchasing the license, the first copy was retained in Helena, the second copy was sent to Bozeman for use in the surveys, the third copy was given to the local wardens, and the fourth copy was for the dealer that sold the license. In 1984 and 1985, in order to increase legibility, the first copy was sent to Bozeman for use in the surveys and the second copy was retained in Helena. The licenses

usually arrived in Bozeman one week after they were remitted to Helena. Samples for the previous month were then pulled and the questionnaires mailed around the 20th of the following month. For example, samples for August would be pulled and sent around the 20th of September. When twice-a-month sampling was used the first half of the month's questionnaires were sent around the 20th of that month. The second half of the month's questionnaires were sent near the first of the following month. For example, the questionnaire for May 1st through May 15th would be mailed on May 20th, for May 16th through May 31st would be mailed on June 1st. This presented a major problem that will be addressed in the discussion section.

The questionnaire (see appendix A for examples), included questions on: what water was fished; nearest landmark , town, or county; date fishing occurred; and number of days fished. In 1984 and 1985 the questionnaire was expanded to include questions for: section number if fishing was from a special water on the map provided, hours fished, number of salmon or trout caught, number of other sport fish caught, number of salmon or trout kept, and number of other sport fish kept. Also included were three questions for an economic study being done to determine the value of a day of fishing. The questions were: was the main purpose of the trip to fish, round trip distance traveled, and did the anglers stay overnight.

Table 3. Number of questionnaires sent for each wave by residency for 1982

	Mailed		Usable		Returns	
Wave	Res	Nonres	Res	Nonres	Res	Nonres
1	2,795	201	2,655	189	1,835	138
2	1,587	100	1,528	98	1,093	74
3	1,490	108	1,421	103	1,007	87
4	1,506	108	1,405	102	1,035	86
5	1,555	105	1,450	93	1,064	90
6	1,493	121	1,389	113	1,120	101
7	1,409	109	1,312	99	1,013	85
8	1,513	111	1,425	102	1,093	84
9	1,492	107	1,407	104	1,074	91
10	1,509	122	1,407	111	1,067	93
11	1,537	114	1,461	101	1,035	75
13		1,213		1,025		431*
TOTAL	17,886	2,519	16,860	2,240	12,436	1,435

* No remail was sent

Past surveys indicated that residents provide nearly 82% of the pressure (Gaffney 1975), therefore sampling was done on a 80/20 split between residents and nonresidents (i.e. proportional allocation). Sample sizes varied from year to year based upon type of sampling and the amount of money available. In 1982, 1,500 residents were to be

Table 4. Number of questionnaires sent for each wave by residency for 1983

Wave	Mailed Res	Mailed Nonres	Usable Res	Usable Nonres	Returns Res	Returns Nonres
1	1,547	114	1,448	107	1,059	90
2	1,552	113	1,465	101	1,119	83
5/6	3,005	224	2,965	219	778	144
7	1,578	109	1,496	108	897	90
8	1,505	114	1,440	106	978	82
9	1,518	110	1,439	99	1,072	91
10	1,505	115	1,416	107	1,017	94
11	1,525	121	1,406	108	1,096	91
12	1,541	129	1,466	120	1,132	99
13		2,429		2,230		1,634
14	785	59	731	52	436	46
15	768	64	725	59	457	45
16	776	60	722	58	466	38
17	768	61	719	57	470	44
TOTAL	18,373	3,822	17,438	3,531	10,977	2,671

Table 5. Number of questionnaires sent for each wave by residency for 1984

Wave	Mailed Res	Mailed Nonres	Usable Res	Usable Nonres	Returns Res	Returns Nonres
1	785	59	731	52	436	46
2	768	64	725	59	457	45
3	776	60	722	58	466	38
4	768	61	719	57	470	44
5	1,545	123	1,483	114	970	71
6	770	60	730	54	462	37
7	769	56	721	54	466	40
8	770	58	738	55	486	39
9	752	58	714	55	449	36
10	771	64	730	59	463	36
11	780	60	739	54	435	41
12	775	60	740	59	462	48
13	786	62	742	59	476	48
14	787	66	761	64	495	49
15	814	63	773	55	471	46
16	1,505	129	1,438	119	960	98
17	1,531	126	1,519	125	906	73
18	1,540	131	1,537	137	905	106
19	1,611	141	1,611	141	884	102
24		2,417		2,417		1,191
TOTAL	18,603	3,918	17,873	3,847	11,119	2,234

sampled, 110 nonresidents and 1,200 2-day nonresident permit holders

for each wave. Actual numbers sent varied slightly from wave to wave (Table 3). Since wave 1 encumbered a time period twice as long as the other waves it was sampled twice as heavily.

In 1983 the same sampling scheme (Table 4) as in 1982 was used with 2 differences: (1) The nonresident 2-day permit holders were sampled at a double rate (2,400) since money was available and (2) March and April (waves 14, 15, 16, and 17) were sampled twice a month instead of monthly and at half the monthly rate (750).

In 1984 the sampling was changed to try and reduce memory bias. The "high pressure" months were to be sampled twice a month, while the "low pressure" months would remain on a monthly sampling basis. The number of anglers sampled on a monthly basis would remain as it did in 1983 (Table 5). May (Wave 5) was sampled as a whole month since the number of licenses remitted wasn't great enough to sample on a half month basis.

In 1985, a change in the way the surveys were mailed enable the sampling rate to be doubled over the 1984 level (Table 6). Again twice-a-month sampling was used on the "high pressure" months.

Table 6. Number of questionnaires sent for each wave by residency for 1985

	Mailed		Usable		Returns	
Wave	Res	Nonres	Res	Nonres	Res	Nonres
1	2,983	257	2,983	257	1,137	124
2	3,027	279	3,027	279	1,154	162
3	3,154	260	3,154	260	1,408	139
4	1,529	144	1,529	144	679	90
5	1,577	136	1,577	136	770	93
6	1,681	141	1,681	141	734	90
7	1,718	139	1,718	139	791	89
8	1,545	136	1,545	136	673	72
9	1,507	130	1,507	130	641	75
10	1,522	135	1,522	135	646	88
11	1,534	134	1,534	134	640	95
12	1,508	132	1,508	132	639	77
13	1,508	130	1,508	130	673	86
14	3,018	265	3,018	265	1,052	126
15	3,042	264	3,042	264	1,251	136
16	3,104	259	3,104	259	1,315	172
17	3,012	265	3,012	265	1,074	162
24		4,708		4,708		1,958
TOTAL	36,969	7,914	36,969	7,914	15,277	3,834

In 1982 and 1983 four separate forms were used for each sampling group. In 1984 two forms were used, one for residents and season nonresidents and the other for 2-day nonresidents. The resident form asked additional questions to determine if the angler was a "pioneer" or "youth" and if so did they plan to fish using only their conservation license.

To ease the sorting process different colored forms were used for each wave. The colors varied over the years and no standard was developed from year to year.

Remail questionnaires were mailed, to those individuals who had not yet responded, two to four weeks after the initial mailing. Returns for each wave were monitored and when they slowed down to a few each day the remail was sent. Included in the remail was a letter of explanation, (see appendix A for examples), a duplicate questionnaire and a return envelope. In 1982 no remail was sent to the 2-day nonresident permit holders. Returns were grouped and counted according to type of license, wave and mailing (initial or remail).

After all questionnaires were received those that had fished in Montana during the period in question were separated from those who said "no". The "yes" respondents were then hand coded and assigned a numeric code for each water fished. They were visually edited for accuracy and completeness. In 1984 and 1985 further coding was done to put numeric values on the questions for the economic study. In addition a code was assigned to each trip the angler made to indicate if the trip was a single or multiple destination type (see appendix A for coding instructions).

All data were then keypunched with each day of fishing recorded as a single record. Edits were run to correct invalid water codes. FORTRAN computer programs were written to analyze the data and calculate fishing pressure and standard errors.

Estimates were made for individual waters based upon the formula:

$$P_j = \sum_{i=1}^{n} \frac{(E_{ij})(D_{ij})}{R_{ij}}$$

where P_j = Pressure for an individual water by the jth residency

E_{ij} = Number of eligible anglers for the ith wave and jth residency

D_i = Days fished that particular water for the ith wave and jth wave

R_i = Number of respondents from the survey for the ith wave and jth residency

n = number of waves in the estimate year or season
j = number of residency types (resident, nonresident, or total)

the variance was then calculated using

$$\mathrm{Var}(P_j) = \sum_{i=1}^{n} \frac{(E_{ij})^2 \, \mathrm{Var}(D_{ij})}{R_{ij}}$$

Where P_j, E_{ij}, R_{ij} and D_{ij} are the save as above.

Pressure estimates between waves and residency were assumed to be independent so variances were summed to obtain total variances. The square root of the variance was taken and this number was reported as the error for fishing pressure all four years. In 1984 and 1985 catch rate and harvest statistics were calculated for individual waters. Catch rates were calculated as follows:

$$C = \sum_{j=1}^{m} \sum_{i=1}^{n} \frac{F_{ij}}{H_{ij}}$$

where C = overall catch rate per hour by an individual water

F_{ij} = total number of fish caught for the ith wave and jth residency

H_{ij} = total hours fished for the ith wave and the jth residency

n = number of waves in the season

m = number of residency types (residents, nonresidents, or total)

The variance for the catch rate was calculated as:

$$\mathrm{Var}(C) = \frac{F^2}{H^2} * N * [\mathrm{Var}(F)/F^2 + \mathrm{Var}(H)/H^2 - 2*\mathrm{Cov}(H,F)/(H*F)]$$

where

$$F = \sum_{j=1}^{m} \sum_{i=1}^{n} F_{ij}$$

$$H = \sum_{j=1}^{m} \sum_{i=1}^{n} H_{ij}$$

Harvest statistics were calculated as follows:

$$H = \sum_{j=1}^{m} \sum_{i=1}^{n} \overline{K_{ij}} * P_{ij}$$

where

H = harvest of all fish species for an individual water

$\overline{K_{ij}}$ = average fish kept for the ith wave and by the jth residency

P_{ij} = total pressure in angler days for the ith wave and by the jth residency

n = number of waves in the season

m = number of residency types (resident, nonresident or total)

The variance for fish harvest was calculated as:

$$Var(H) = \overline{K}^2 * Var(P) + P^2 * Var(\overline{K})$$

Where

$$\overline{K} = \sum_{j=1}^{m} \sum_{i=1}^{n} \overline{K_{ij}}$$

$$P = \sum_{j=1}^{m} \sum_{i=1}^{m} P_{ij}$$

RESULTS

1982

Licensed anglers fishing on Montana waters exerted 2,723,713 angler days of pressure for the 1982 license year. Residents accounted for 2,104,888 man days (77.3%) and nonresidents made up the remaining 618,825 angler days (32.7%). Individual water estimates sorted alphabetically and by pressure are given appendixes 1982A through 1982F.

The pressure distributed between Fish, Wildlife and Parks regions (Figure 1) emphasizes the cold water fishery (Chart 1). Region 3 received 800,723 angler days (29.4%), regions 1 and 4 were even with 525,194 (19.3%) and 515,899 (18.9%) angler days respectively. Region 2 was next in pressure with 376,765 (13.8%) angler days. Region 5 had a pressure of 320,553 (11.8%) angler days. The warm water regions of 6 and 7 were the lowest in pressure with 105,509 (3.9%) and 79,070 (2.9%) angler days respectively. Individual water estimates by regions are given in appendixes 1982G through 1982M.

Angling in Montana was directed toward trout. Salmonid waters accounted for 88.1% (2,400,683 angler days) of the statewide pressure while nonsalmonid accounted for 6.3% (171,480 angler days) of the pressure and undesignated waters accounted for 5.6% (151,549 angler days) of the pressure (Chart 2). An undesignated water is one that could not be coded to an individual water, and thus water type, with the information provided and was assigned a generic code based on drainage and county.

Within salmonid waters, the streams received slightly more pressure than the lakes, 54.9% versus 45.1%. The nonsalmonid waters were evenly split in pressure between streams and lakes (50.4% versus 49.6%).

Salmonid angling dominated the pressure in regions 1, 2, 3, 4, and 5. Regions 6 and 7 were predominately nonsalmonid angling (Chart 3, Table 7).

Table 7. Angling pressure in angler days by region by water type for the 1982 angling year

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	190,972	144,418	46,554
Salmonid Lake	276,450	213,798	62,652
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	18,199	16,756	1,443
Undesignated Stream	31,368	21,908	9,460
Undesignated Lake	8,205	2,232	5,973
TOTAL	525,194	399,112	126,082

Table 7. Angling pressure in angler days by region by water type for the 1982 angling year (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 2			
Salmonid Stream	235,609	188,928	46,681
Salmonid Lake	117,594	92,775	24,819
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	14,112	8,671	5,441
Undesignated Lake	9,450	5,874	3,576
TOTAL	376,765	296,248	80,517
REGION 3			
Salmonid Stream	473,395	288,317	185,078
Salmonid Lake	300,585	208,891	91,694
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	22,900	14,951	7,949
Undesignated Lake	3,843	1,856	2,987
TOTAL	800,723	513,015	287,708
REGION 4			
Salmonid Stream	194,116	168,523	25,593
Salmonid Lake	266,389	238,030	28,359
Nonsalmonid Stream	6,199	5,949	250
Nonsalmonid Lake	16,275	16,052	223
Undesignated Stream	28,614	22,167	6,447
Undesignated Lake	4,306	4,216	90
TOTAL	515,899	454,937	60,962
REGION 5			
Salmonid Stream	209,491	181,135	28,356
Salmonid Lake	90,755	77,271	13,484
Nonsalmonid Stream	3,539	3,289	250
Nonsalmonid Lake	0	0	0
Undesignated Stream	12,237	10,170	2,067
Undesignated Lake	4,531	2,561	1,970
TOTAL	320,553	274,426	46,127
REGION 6			
Salmonid Stream	10,332	8,547	1,785
Salmonid Lake	24,608	23,043	1,565
Nonsalmonid Stream	26,946	26,716	230
Nonsalmonid Lake	35,639	31,962	3,677
Undesignated Stream	5,415	3,360	1,785
Undesignated Lake	2,569	2,110	459
TOTAL	105,509	96,008	9,501

Table 7. Angling pressure in angler days by region by water type for the 1982 angling year (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 7			
Salmonid Stream	3,978	3,325	653
Salmonid Lake	6,409	5,950	459
Nonsalmonid Stream	49,816	46,884	2,932
Nonsalmonid Lake	14,867	10,983	3,884
Undesignated Stream	2,859	2,859	0
Undesignated Lake	1,141	1,141	0
TOTAL	79,070	71,142	7,928
STATEWIDE			
Salmonid Stream	1,317,893	983,193	334,700
Salmonid Lake	1,082,790	859,758	223,032
Nonsalmonid Stream	86,500	82,838	3,662
Nonsalmonid Lake	84,980	75,753	9,227
Undesignated Stream	117,505	84,356	33,149
Undesignated Lake	34,045	18,990	15,055
TOTAL	2,723,713	2,104,888	618,825

Residents dominated the pressure in all regions (Chart 4). In region 1 residents accounted for 76.0% and nonresidents 24.0% of the regional pressure. Salmonid lake fishing dominated with 52.6% of the total angling pressure within the region (Chart 5). The majority (77.3%) of this pressure was exerted by residents.

In region 2 residents and nonresidents accounted for 78.6% and 21.4% of the regional pressure respectively. Salmonid stream fishing was dominate accounting for 62.3% of the total regional angling pressure (Chart 6).

In region 3 residents accounted for 64.1% of the regional pressure and nonresidents made up the remaining 35.9% of the pressure. Salmonid stream and lake fishing was the largest for any region accounting for 36.0% and 22.7% of the statewide totals respectively. Within the region salmonid stream fishing dominated with 59.1% of the regional pressure (Chart 7).

In region 4 residents and nonresidents accounted for 88.2% and 11.8% of the regional pressure respectively. Like region 1, most of region 4's pressure came from salmonid lakes (51.6%) (Chart 8).

Within region 5 residents accounted for 85.6% and nonresidents 14.4% of the regional pressure. Salmonid streams provided the majority of the pressure (65.5%) (Chart 9).

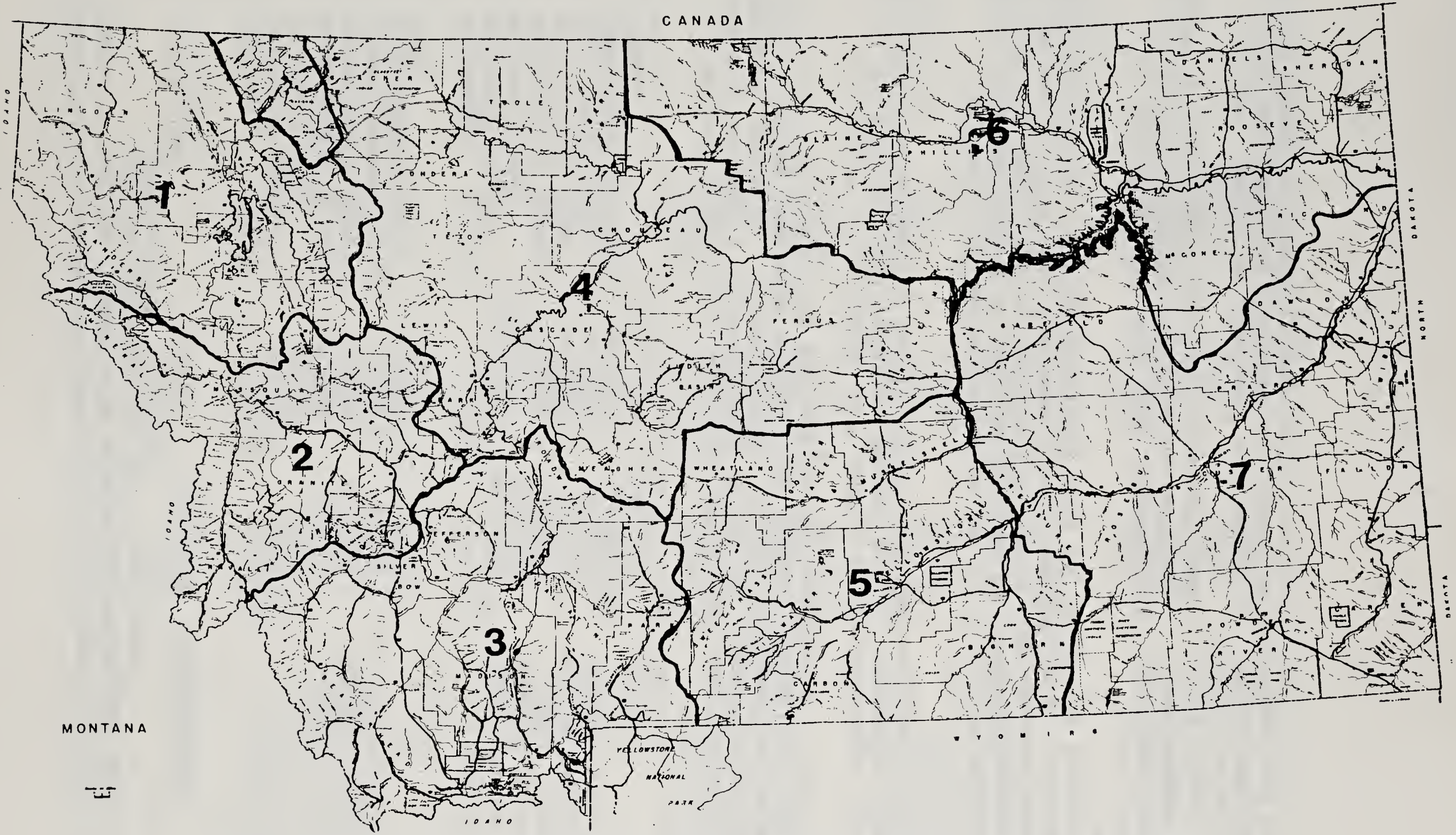
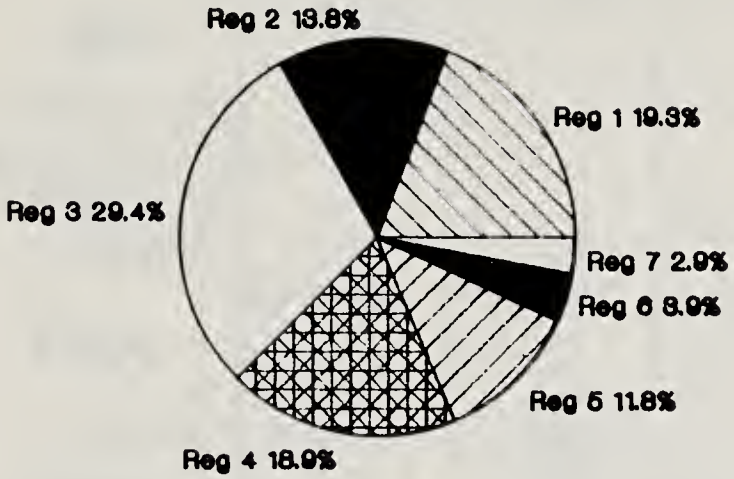
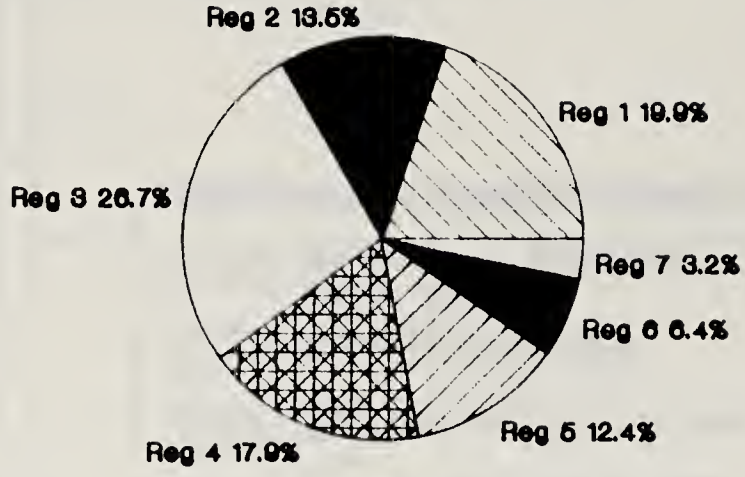


Figure 1. Map of the State of Montana showing the Department of Fish, Wildlife & Parks Regional boundaries.

Statewide Angling Pressure
Regional Estimates

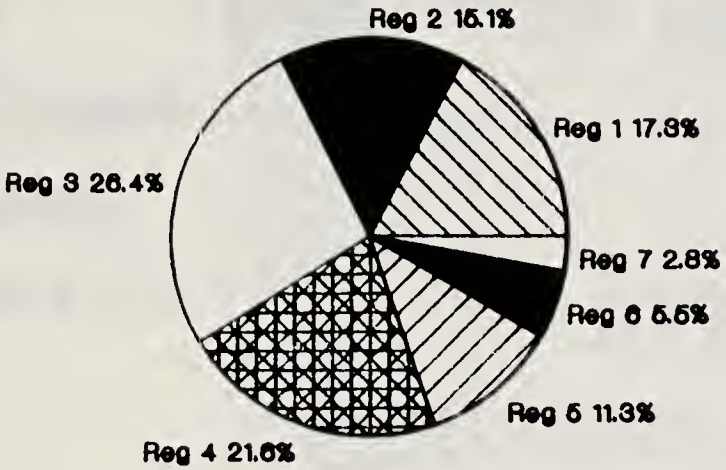


1982

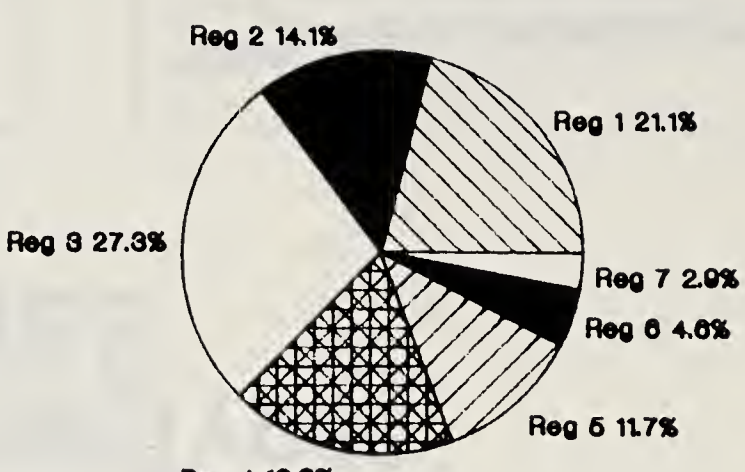


1983

1982 - 1985



1984



1985

Chart 1. Percent of licensed angling pressure occurring in each FWP region from 1982 to 1985

Statewide Angling Pressure
Comparing Water Types
1982 - 1985

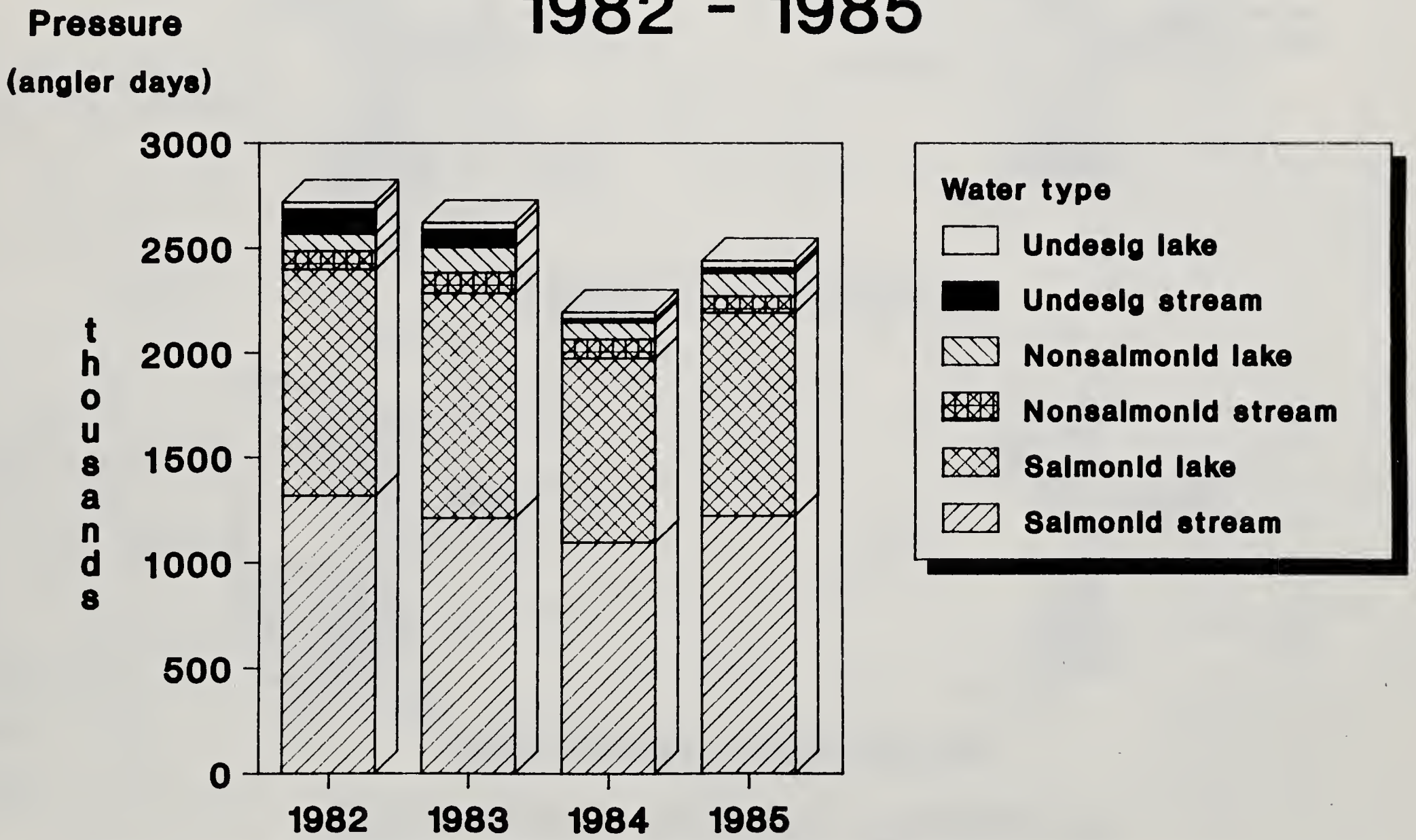


Chart 2. Amount of licensed angling pressure in angler days by water type from 1982 to 1985

Statewide Angling Pressure
Comparing Regional Water Types
1982

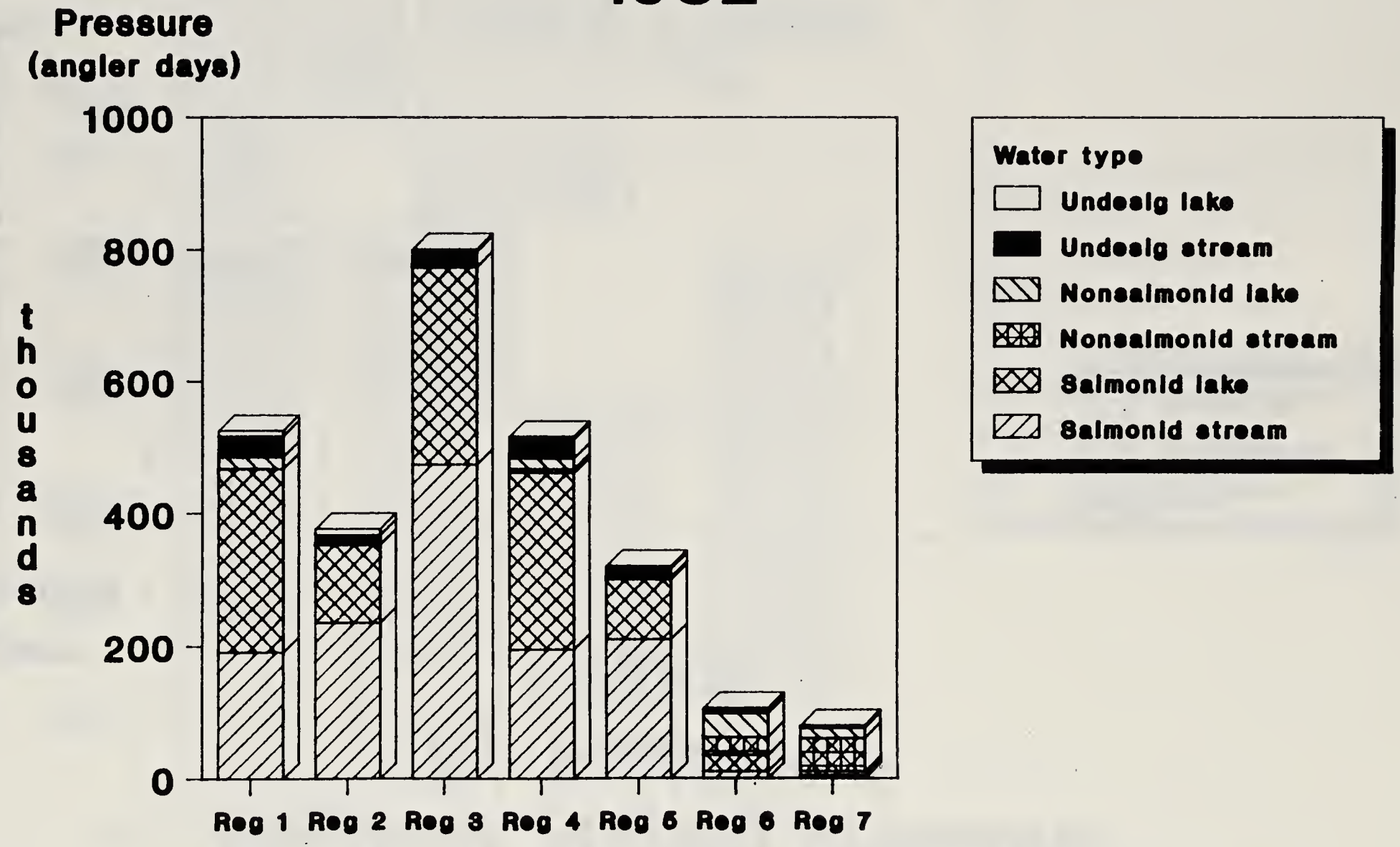


Chart 3. Amount of licensed angling pressure in angler days by water type from 1982 to 1986

Regional Angling Pressure By Residency 1982

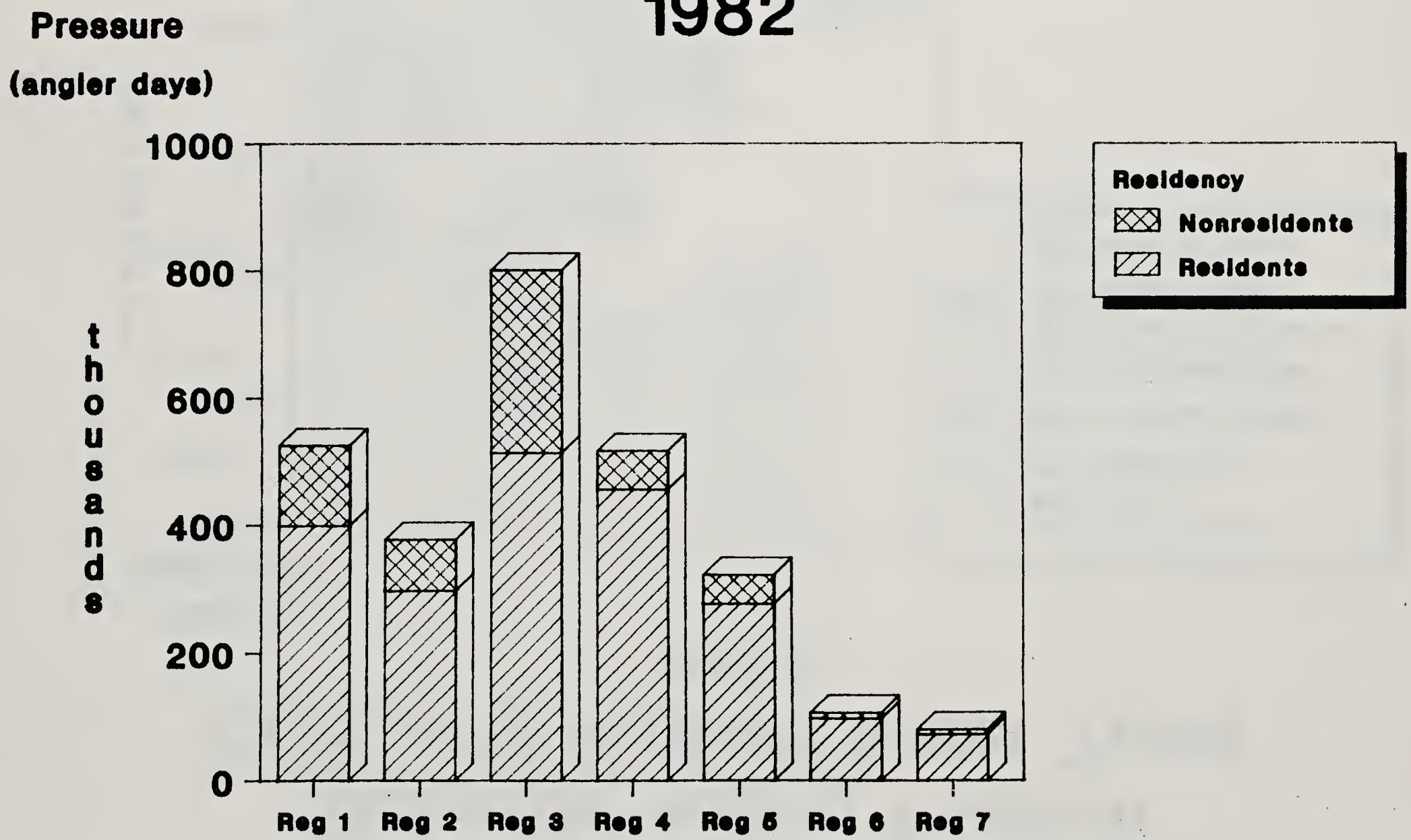


Chart 4. Amount of licensed angling pressure in angler days for each FWP region by residency for 1982

Region One Angling Pressure
Comparing Water Types
1982 - 1985

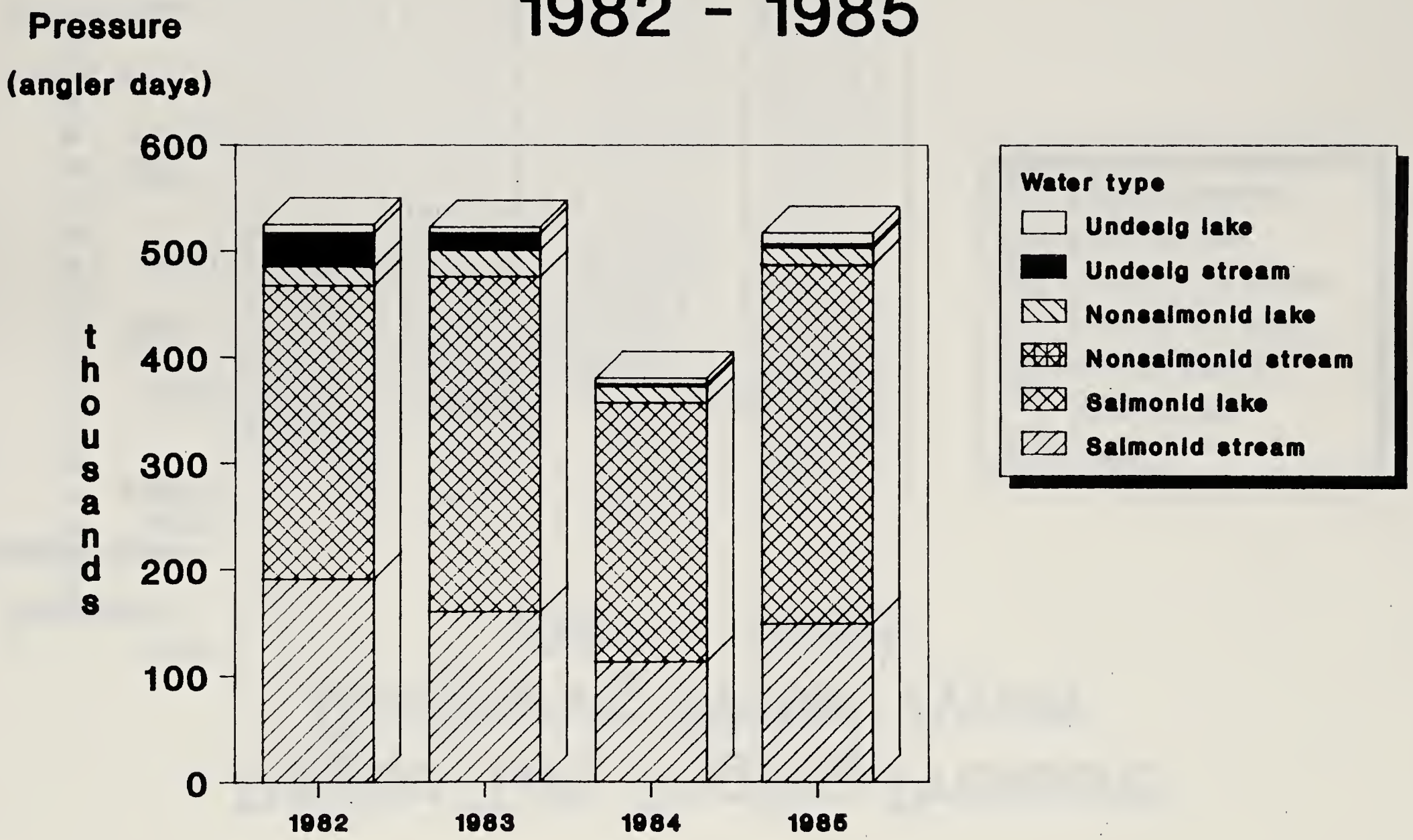


Chart 5. Amount of licensed angling pressure in angler days by water type for FWP region 1 from 1982 to 1985

Region Two Angling Pressure
Comparing Water Types
1982 - 1985

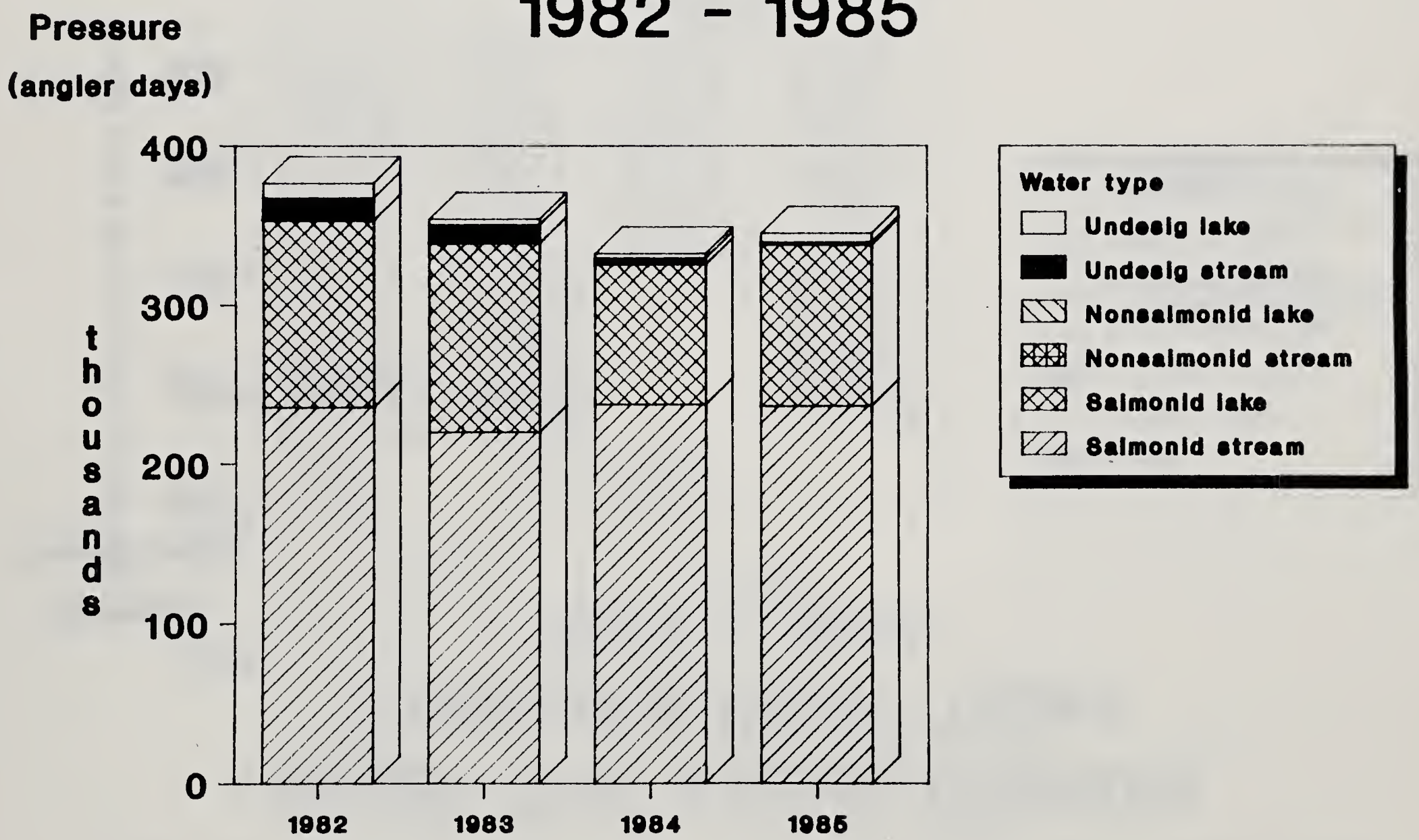


Chart 6. Amount of licensed angling pressure in angler days by water type for FWP region 2 from 1982 to 1985

Region Three Angling Pressure
Comparing Water Types
1982 - 1985

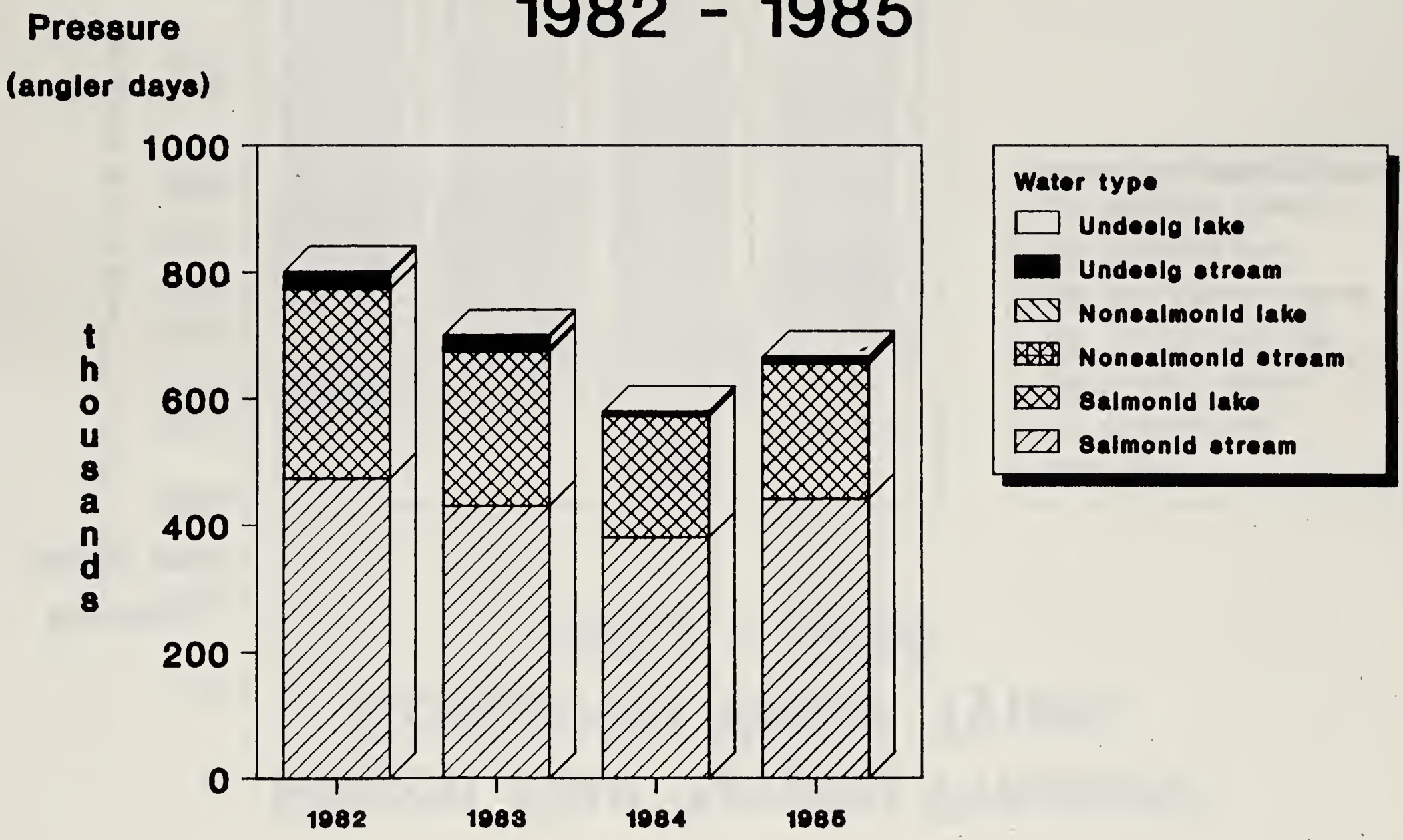


Chart 7. Amount of licensed angling pressure in angler days by water type for FWP region 3 from 1982 to 1985

Region Four Angling Pressure
Comparing Water Types
1982 - 1985

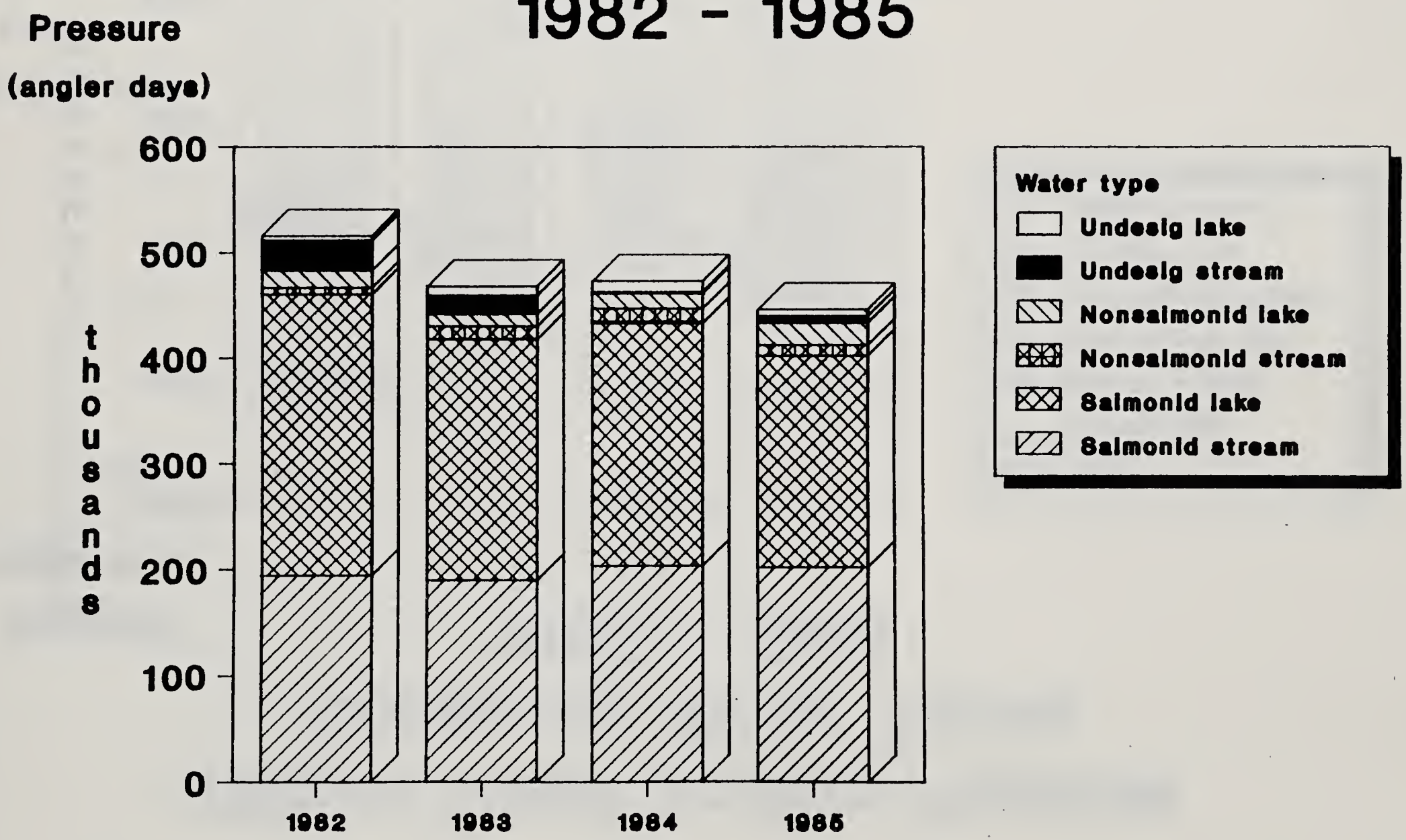


Chart 8. Amount of licensed angling pressure in angler days by water type for FWP region 4 from 1982 to 1985

Region Five Angling Pressure
Comparing Water Types
1982 - 1985

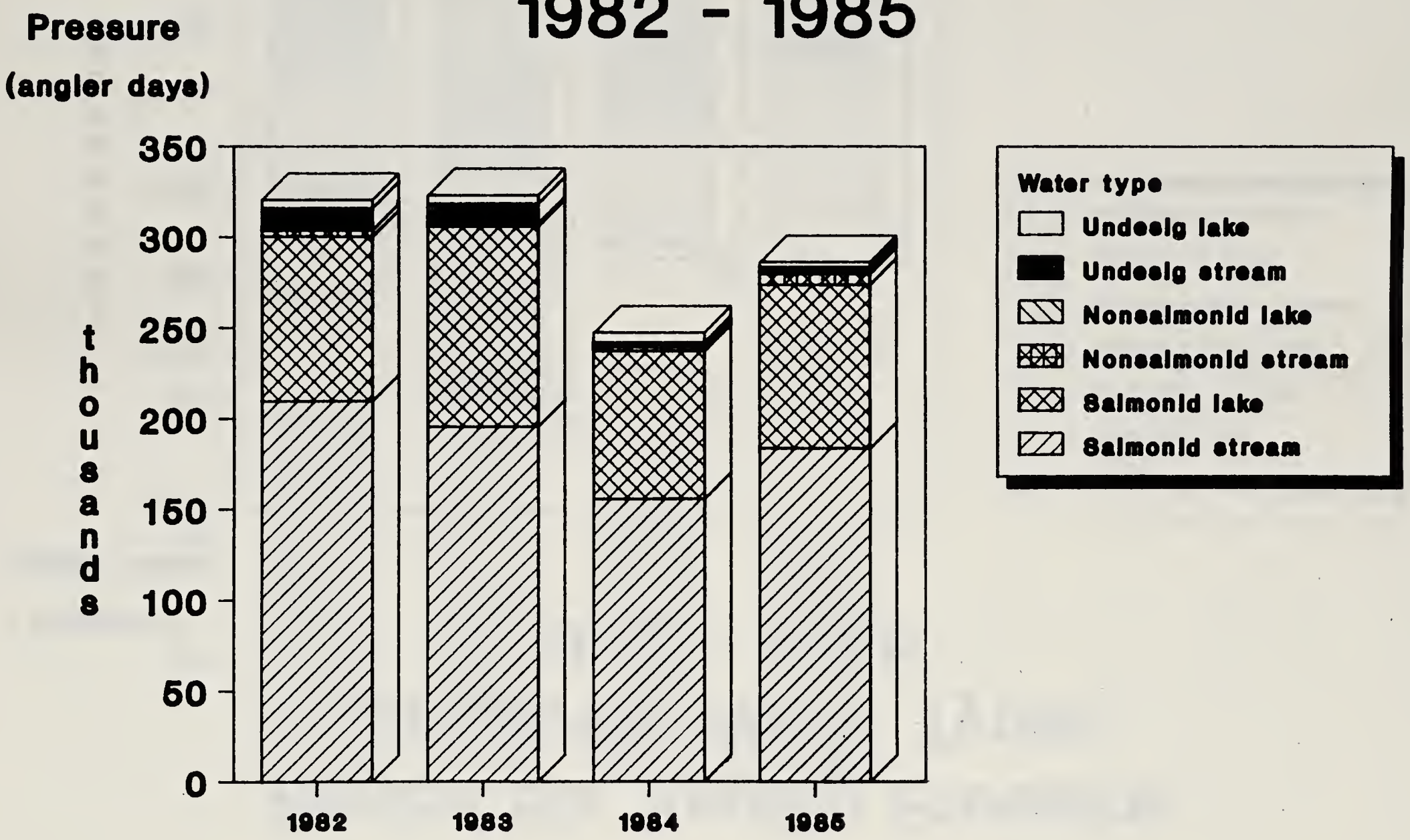


Chart 9. Amount of licensed angling pressure in angler days by water type for FWP region 5 from 1982 to 1985

Region Six Angling Pressure
Comparing Water Types
1982 - 1985

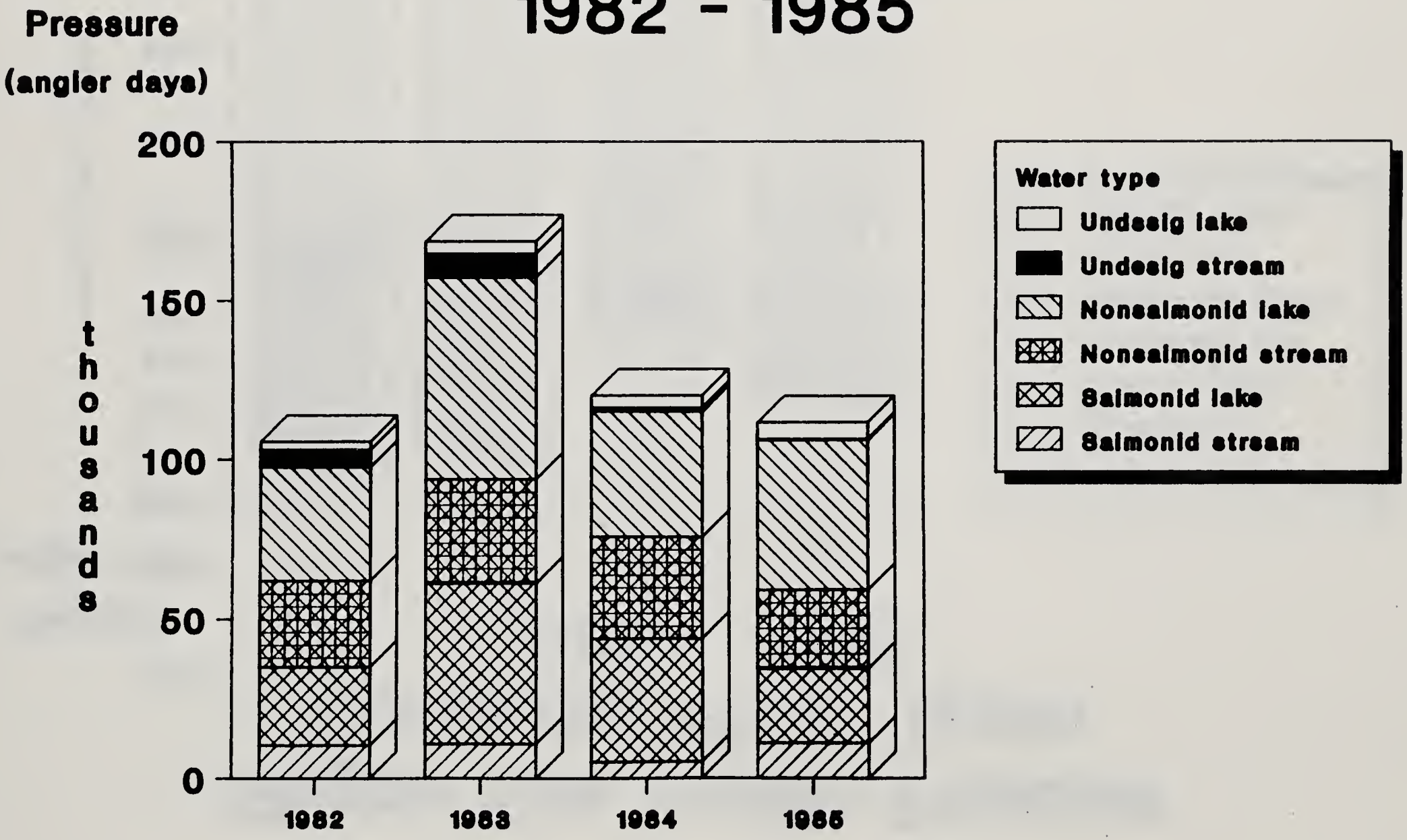


Chart 10. Amount of licensed angling pressure in angler days by water type for FWP region 6 from 1982 to 1985

Region Seven Angling Pressure
Comparing Water Types
1982 - 1985

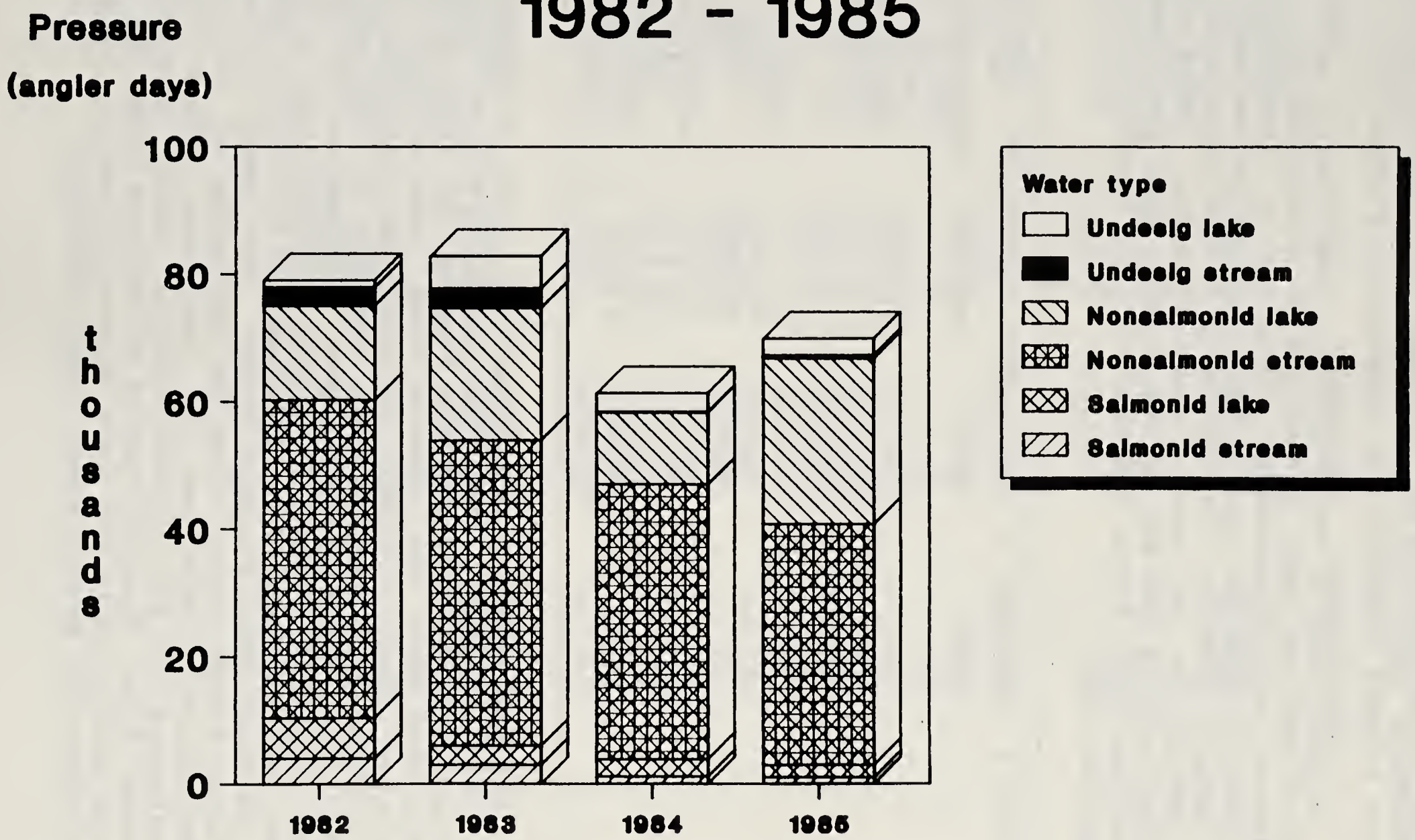


Chart 11. Amount of licensed angling pressure in angler days by water type for FWP region 7 from 1982 to 1985

In regions 6 and 7 residents provided nearly 90% of the pressure. Regions 6 and 7 provided the majority of the statewide nonsalmonid pressure. Region 6 maintained the states largest pressure for nonsalmonid lakes (41.9%) (Chart 10) while region 7 maintained the states largest pressure for nonsalmonid streams (57.6%) (Chart 11).

August (wave 3) was overall the peak fishing period, while December (wave 7) was the least fished period during the year (Table 8). Both residents and nonresidents preferred to fish during August while residents fished the least in December and nonresidents fished the least in February (wave 9). The majority of the nonresident pressure (74.4%) was exerted by the 2-day license holders. Since these anglers were sampled once at the end of the license year the pressure could not be classified into waves although it can logically be assigned to the summer season.

Table 8. Pressure in angler days by wave for 1982

WAVE	TOTAL	RESIDENT	NONRESIDENT
1	314,717	302,008	12,709
2	419,421	379,496	39,925
3	575,402	515,311	60,091
4	231,581	212,468	19,113
5	142,162	138,061	4,101
6	62,316	58,002	4,314
7	58,817	56,003	2,814
8	81,008	77,397	3,611
9	99,005	98,539	466
10	116,420	112,822	3,598
11	162,999	154,781	8,218
13	459,865		459,865

Angling pressure was summarized by the 22 major drainages within the state (Table 9). The lower Clark Fork River drainage contains the angling pressure from all the streams and lakes below the Bitterroot River, excluding the pressure from those waters contained in other drainages listed (Flathead, Kootenai, and Bitterroot). The Upper Clark Fork River drainage, likewise, contains all the angling pressure for waters above the Bitterroot River drainage excluding the pressure for those drainages listed. The upper Flathead River drainage contains the South Fork Flathead River drainage and all waters above the confluence of the South Fork Flathead River. The lower Flathead River drainage includes those waters below the confluence of the South Fork Flathead River including Flathead Lake and those waters (where pressure was obtainable) on the Kootenai-Salish Indian reservation. The lower Missouri River drainage covers all waters below the confluence of the Marias River, while the upper Missouri River drainage incorporates the area above the Marias River, again excluding

Table 9. Angling pressure in angler days by drainage by water type for the 1982 angling year May '82 through April '83

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Beaverhead Drainage			
Salmonid Stream	61,335	34,462	26,873
Salmonid Lake	68,028	42,446	25,582
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	4,551	1,963	2,588
Undesignated Lake	230	0	230
TOTAL	134,144	78,871	55,273
Big Hole Drainage			
Salmonid Stream	74,143	48,537	25,606
Salmonid Lake	8,478	5,269	3,209
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,925	1,756	1,169
Undesignated Lake	0	0	0
TOTAL	85,546	55,562	29,984
Bitterroot Drainage			
Salmonid Stream	82,700	63,605	19,095
Salmonid Lake	8,984	8,115	869
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	4,646	1,431	3,215
Undesignated Lake	2,884	587	2,297
TOTAL	99,214	73,738	25,476
Blackfoot Drainage			
Salmonid Stream	36,914	29,963	6,951
Salmonid Lake	42,799	28,463	14,336
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	5,120	3,283	1,837
Undesignated Lake	3,246	2,057	1,189
TOTAL	88,079	63,766	24,313

Table 9. Angling pressure in angler days by drainage by water type for the 1982 angling year May '82 through April '83 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Clark Fork Drainage			
Salmonid Stream	81,374	65,167	16,207
Salmonid Lake	22,579	17,671	4,908
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	4,478	2,305	2,173
Undesignated Lake	2,295	1,057	1,238
TOTAL	110,726	86,200	24,526
Upper Clark Fork Drainage			
Salmonid Stream	62,183	50,066	12,117
Salmonid Lake	62,220	54,109	8,111
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,747	2,497	250
Undesignated Lake	4,285	2,447	1,838
TOTAL	131,435	109,119	22,316
Lower Flathead Drainage			
Salmonid Stream	66,783	52,277	14,506
Salmonid Lake	187,758	148,376	39,382
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	18,062	16,619	1,443
Undesignated Stream	6,509	6,286	223
Undesignated Lake	1,349	200	1,149
TOTAL	280,461	223,758	56,703
Upper Flathead Drainage			
Salmonid Stream	39,497	28,681	10,816
Salmonid Lake	14,616	12,829	1,787
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	12,144	10,224	1,920
Undesignated Lake	910	910	0
TOTAL	67,167	52,644	14,523
Gallatin Drainage			
Salmonid Stream	73,279	48,229	25,050
Salmonid Lake	14,157	10,003	4,154
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	3,169	1,331	1,838
Undesignated Lake	689	0	689
TOTAL	91,294	59,563	31,731

Table 9. Angling pressure in angler days by drainage by water type for the 1982 angling year May '82 through April '83 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Jefferson Drainage			
Salmonid Stream	33,050	29,240	3,810
Salmonid Lake	11,499	11,229	270
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,238	2,177	61
Undesignated Lake	0	0	0
TOTAL	46,787	42,646	4,141
Kootenai Drainage			
Salmonid Stream	57,491	43,948	13,543
Salmonid Lake	55,088	37,010	18,078
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	137	137	0
Undesignated Stream	10,346	5,063	5,283
Undesignated Lake	4,524	848	3,676
TOTAL	127,586	87,006	40,580
Little Missouri Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	0	0	0
Nonsalmonid Stream	422	422	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	422	422	0
Madison Drainage			
Salmonid Stream	133,746	48,048	85,698
Salmonid Lake	77,234	37,189	40,045
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	3,561	1,728	1,833
Undesignated Lake	188	188	0
TOTAL	214,729	87,153	127,576
Marias Drainage			
Salmonid Stream	7,647	7,607	40
Salmonid Lake	30,156	27,430	2,726
Nonsalmonid Stream	1,918	1,918	0
Nonsalmonid Lake	10,393	10,170	223
Undesignated Stream	2,227	2,227	0
Undesignated Lake	576	576	0
TOTAL	52,917	49,928	2,989

Table 9. Angling pressure in angler days by drainage by water type for the 1982 angling year May '82 through April '83 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Milk Drainage			
Salmonid Stream	3,668	3,648	20
Salmonid Lake	16,547	14,982	1,565
Nonsalmonid Stream	11,576	11,576	0
Nonsalmonid Lake	7,036	6,806	230
Undesignated Stream	1,842	1,125	717
Undesignated Lake	1,845	1,386	459
TOTAL	42,514	39,523	2,991
Lower Missouri Drainage			
Salmonid Stream	14,863	10,781	4,082
Salmonid Lake	22,081	22,020	61
Nonsalmonid Stream	15,895	15,665	230
Nonsalmonid Lake	28,740	25,293	3,447
Undesignated Stream	11,923	7,382	4,541
Undesignated Lake	1,192	1,192	0
TOTAL	94,694	82,333	12,361
Upper Missouri Drainage			
Salmonid Stream	184,718	159,121	25,597
Salmonid Lake	279,326	242,992	36,334
Nonsalmonid Stream	3,979	3,729	250
Nonsalmonid Lake	0	0	0
Undesignated Stream	14,404	12,337	2,067
Undesignated Lake	3,503	3,413	90
TOTAL	485,930	421,592	64,338
Musselshell Drainage			
Salmonid Stream	29,329	26,502	2,827
Salmonid Lake	34,323	31,883	2,440
Nonsalmonid Stream	50	50	0
Nonsalmonid Lake	5,882	5,882	0
Undesignated Stream	10,616	8,790	1,826
Undesignated Lake	150	150	0
TOTAL	80,350	73,257	7,093
St Mary Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	10,842	7,845	2,997
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	377	377	0
TOTAL	11,219	8,222	2,997

Table 9. Angling pressure in angler days by drainage by water type for the 1982 angling year May '82 through April '83 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Sun Drainage			
Salmonid Stream	9,904	8,895	1,009
Salmonid Lake	33,023	30,267	2,756
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	678	678	0
Undesignated Lake	100	100	0
TOTAL	43,705	39,940	3,765
Lower Yellowstone Drainage			
Salmonid Stream	3,978	3,325	653
Salmonid Lake	6,221	5,762	459
Nonsalmonid Stream	49,121	46,189	2,932
Nonsalmonid Lake	14,730	10,846	3,884
Undesignated Stream	1,735	1,735	0
Undesignated Lake	1,091	1,091	0
TOTAL	76,876	68,948	7,928
Upper Yellowstone Drainage			
Salmonid Stream	261,291	221,091	40,200
Salmonid Lake	76,831	63,868	12,963
Nonsalmonid Stream	3,539	3,289	250
Nonsalmonid Lake	0	0	0
Undesignated Stream	11,646	10,038	1,608
Undesignated Lake	4,611	2,411	2,200
TOTAL	357,918	300,697	57,221

those drainages listed separately. The lower Yellowstone River drainage represents the area below the mouth of the Bighorn River while the upper Yellowstone River drainage covers the Bighorn River drainage and all waters above the confluence of the Bighorn River. The pressure by drainage ranged from 485,930 angler days for the Upper Missouri River drainage to 422 angler days for the Little Missouri River drainage.

The "summer" season for angling in Montana is considered as that period of the year between the first of May through the end of September. In 1982 2,001,386 (73.5%) of the angling pressure occurred during this period (Table 10). Percentages of angling pressure within the regions for the summer period was very similar to the entire year with region 3 having the greatest difference (1.5%). Regions 1, 2, and 3 have 75% of their annual pressure occurring during the "summer" season. Regions 4, 5, and 7 have 70% of their pressure during the "summer while region 6 has 65% of its pressure during the "summer" season.

Table 10. Angling pressure in angler days by region by water type for the "summer" season of May '82 through September '82

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	151,902	106,827	45,075
Salmonid Lake	208,335	146,558	61,777
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	8,077	6,902	1,175
Undesignated Stream	25,739	16,279	9,460
Undesignated Lake	8,004	2,031	5,973
TOTAL	402,057	278,597	123,460
REGION 2			
Salmonid Stream	177,583	131,478	46,105
Salmonid Lake	86,355	61,536	24,819
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	10,520	5,218	5,302
Undesignated Lake	9,251	5,675	3,576
TOTAL	283,709	203,907	79,802
REGION 3			
Salmonid Stream	368,317	190,521	177,796
Salmonid Lake	227,097	142,298	84,799
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	19,537	11,588	7,949
Undesignated Lake	3,448	461	2,987
TOTAL	618,399	344,868	273,531
REGION 4			
Salmonid Stream	128,169	103,988	24,181
Salmonid Lake	190,848	163,572	27,276
Nonsalmonid Stream	5,018	4,768	250
Nonsalmonid Lake	8,623	8,400	223
Undesignated Stream	16,496	10,727	5,769
Undesignated Lake	3,128	3,038	90
TOTAL	352,282	294,493	57,789

Table 10. Angling pressure in angler days by region by water type for the "summer" season of May '82 through September '82 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 5			
Salmonid Stream	137,826	110,727	27,099
Salmonid Lake	68,394	57,411	10,983
Nonsalmonid Stream	1,942	1,692	250
Nonsalmonid Lake	0	0	0
Undesignated Stream	8,806	6,739	2,067
Undesignated Lake	4,531	2,561	1,970
TOTAL	221,499	179,130	42,369
REGION 6			
Salmonid Stream	7,534	5,749	1,785
Salmonid Lake	15,232	14,523	709
Nonsalmonid Stream	15,807	15,577	230
Nonsalmonid Lake	22,587	19,208	3,379
Undesignated Stream	4,013	2,228	1,785
Undesignated Lake	1,971	1,512	459
TOTAL	67,144	58,797	8,347
REGION 7			
Salmonid Stream	2,426	1,943	483
Salmonid Lake	3,880	3,421	459
Nonsalmonid Stream	35,916	33,106	2,810
Nonsalmonid Lake	11,060	8,043	3,017
Undesignated Stream	2,066	2,066	0
Undesignated Lake	948	948	0
TOTAL	56,296	49,527	6,769
STATEWIDE			
Salmonid Stream	973,757	651,233	322,524
Salmonid Lake	800,141	589,319	210,822
Nonsalmonid Stream	58,683	55,143	3,540
Nonsalmonid Lake	50,347	42,553	7,794
Undesignated Stream	87,177	54,845	32,332
Undesignated Lake	31,281	16,226	15,055
TOTAL	2,001,386	1,409,319	592,067

"Summer" angling pressure by drainage (Table 11) ranged from 329,254 angler days for the upper Missouri drainage to 231 angler days for the Little Missouri River drainage.

Table 11. Angling pressure in angler days by drainage by water type for the 1982 "summer" angling season May '82 through September '82

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Beaverhead Drainage			
Salmonid Stream	46,813	21,616	25,197
Salmonid Lake	43,485	19,631	23,854
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	4,551	1,963	2,588
Undesignated Lake	230	0	230
TOTAL	95,079	43,210	51,869
Big Hole Drainage			
Salmonid Stream	66,504	44,627	21,877
Salmonid Lake	8,285	5,076	3,209
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,760	591	1,169
Undesignated Lake	0	0	0
TOTAL	76,549	50,294	26,255
Bitterroot Drainage			
Salmonid Stream	60,093	41,132	18,961
Salmonid Lake	6,405	5,536	869
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	4,256	1,041	3,215
Undesignated Lake	2,884	587	2,297
TOTAL	73,638	48,296	25,342
Blackfoot Drainage			
Salmonid Stream	30,770	23,819	6,951
Salmonid Lake	34,602	20,266	14,336
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	3,484	1,647	1,837
Undesignated Lake	3,246	2,057	1,189
TOTAL	72,102	47,789	24,313
Lower Clark Fork Drainage			
Salmonid Stream	55,966	41,139	14,827
Salmonid Lake	16,682	11,774	4,908
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,912	878	2,034
Undesignated Lake	2,295	1,057	1,238
TOTAL	77,855	54,848	23,007

Table 11. Angling pressure in angler days by drainage by water type for the 1982 "summer" angling season May '82 through September '82 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Upper Clark Fork Drainage			
Salmonid Stream	54,556	42,439	12,117
Salmonid Lake	41,950	33,839	8,111
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,548	2,298	250
Undesignated Lake	4,086	2,248	1,838
TOTAL	103,140	80,824	22,316
Lower Flathead Drainage			
Salmonid Stream	55,566	41,060	14,506
Salmonid Lake	143,075	104,148	38,927
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	7,940	6,765	1,175
Undesignated Stream	4,499	4,276	223
Undesignated Lake	1,349	200	1,149
TOTAL	212,429	156,449	55,980
Upper Flathead Drainage			
Salmonid Stream	35,294	24,478	10,816
Salmonid Lake	10,546	8,759	1,787
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	10,932	9,012	1,920
Undesignated Lake	910	910	0
TOTAL	57,682	43,159	14,523
Gallatin Drainage			
Salmonid Stream	55,756	31,344	24,412
Salmonid Lake	11,778	7,624	4,154
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,763	925	1,838
Undesignated Lake	689	0	689
TOTAL	70,986	39,893	31,093
Jefferson Drainage			
Salmonid Stream	17,590	13,780	3,810
Salmonid Lake	9,904	9,634	270
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,243	1,182	61
Undesignated Lake	0	0	0
TOTAL	28,737	24,596	4,141

Table 11. Angling pressure in angler days by drainage by watertype for the 1982 "summer" angling season May '82 through September '82 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Kootenai Drainage			
Salmonid Stream	37,601	24,599	13,002
Salmonid Lake	41,430	23,772	17,658
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	137	137	0
Undesignated Stream	8,138	2,855	5,283
Undesignated Lake	4,323	647	3,676
TOTAL	91,629	52,010	39,619
Little Missouri Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	0	0	0
Nonsalmonid Stream	231	231	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	231	231	0
Madison Drainage			
Salmonid Stream	118,853	34,272	84,581
Salmonid Lake	69,507	31,264	38,243
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	3,353	1,520	1,833
Undesignated Lake	188	188	0
TOTAL	191,901	67,244	124,657
Marias Drainage			
Salmonid Stream	4,914	4,874	40
Salmonid Lake	17,809	15,491	2,318
Nonsalmonid Stream	1,324	1,324	0
Nonsalmonid Lake	7,377	7,154	223
Undesignated Stream	1,068	1,068	0
Undesignated Lake	576	576	0
TOTAL	33,068	30,487	2,581
Milk Drainage			
Salmonid Stream	2,094	2,074	20
Salmonid Lake	9,422	8,713	709
Nonsalmonid Stream	5,843	5,843	0
Nonsalmonid Lake	4,121	3,891	230
Undesignated Stream	1,455	738	717
Undesignated Lake	1,247	788	459
TOTAL	24,182	22,047	2,135

Table 11. Angling pressure in angler days by drainage by watertype for the 1982 "summer" angling season May '82 through September '82 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Missouri Drainage			
Salmonid Stream	12,252	8,170	4,082
Salmonid Lake	17,984	17,923	61
Nonsalmonid Stream	10,287	10,057	230
Nonsalmonid Lake	18,603	15,454	3,149
Undesignated Stream	8,312	3,771	4,541
Undesignated Lake	1,192	1,192	0
TOTAL	68,630	56,567	12,063
Upper Missouri Drainage			
Salmonid Stream	119,612	94,871	24,741
Salmonid Lake	195,359	162,390	32,969
Nonsalmonid Stream	3,594	3,344	250
Nonsalmonid Lake	0	0	0
Undesignated Stream	8,382	6,315	2,067
Undesignated Lake	2,307	2,217	90
TOTAL	329,254	269,137	60,117
Musselshell Drainage			
Salmonid Stream	22,088	19,939	2,149
Salmonid Lake	27,831	25,391	2,440
Nonsalmonid Stream	50	50	0
Nonsalmonid Lake	1,246	1,246	0
Undesignated Stream	7,083	5,935	1,148
Undesignated Lake	150	150	0
TOTAL	58,448	52,711	5,737
St Mary Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	5,978	3,656	2,322
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	5,978	3,656	2,322
Sun Drainage			
Salmonid Stream	6,536	5,527	1,009
Salmonid Lake	25,855	23,099	2,756
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	476	476	0
Undesignated Lake	100	100	0
TOTAL	32,967	29,202	3,765

Table 11. Angling pressure in angler days by drainage by water type for the 1982 "summer" angling season May '82 through September '82 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Yellowstone Drainage			
Salmonid Stream	2,426	1,943	483
Salmonid Lake	3,692	3,233	459
Nonsalmonid Stream	35,412	32,602	2,810
Nonsalmonid Lake	10,923	7,906	3,017
Undesignated Stream	942	942	0
Undesignated Lake	898	898	0
TOTAL	54,293	47,524	6,769
Upper Yellowstone Drainage			
Salmonid Stream	168,473	129,530	38,943
Salmonid Lake	58,562	48,100	10,462
Nonsalmonid Stream	1,942	1,692	250
Nonsalmonid Lake	0	0	0
Undesignated Stream	9,020	7,412	1,608
Undesignated Lake	4,611	2,411	2,200
TOTAL	242,608	189,145	53,463

The "winter" season for angling is from the first of October through April of the following year. In 1982, 722,315 angler days (26.5%) of the annual fishing pressure occurred during this period (Table 12). The pressure from region to region ranged from a high of 182,317 angler days for Region 3 to a low of 22,774 angler days for Region 7. Region 4 surpassed Region 1 and Region 5 surpassed Region 2 in rankings when compared to the annual estimates.

Winter angling pressure (Table 13) by drainage ranged from 156,674 angler days for the Upper Missouri River drainage to 191 angler days for the Little Missouri River drainage in Eastern Montana.

Table 12. Angling pressure in angler days by region by water type for the "winter" season of October '82 through April '83

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	39,073	37,594	1,479
Salmonid Lake	68,114	67,240	874
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	10,121	9,853	268
Undesignated Stream	5,631	5,631	0
Undesignated Lake	202	202	0
TOTAL	123,141	120,520	2,621

Table 12. Angling pressure in angler days by region by water type for the "winter" season of October '82 through April '83 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 2			
Salmonid Stream	58,025	57,449	576
Salmonid Lake	31,237	31,237	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	3,591	3,452	139
Undesignated Lake	199	199	0
TOTAL	93,052	92,337	715
REGION 3			
Salmonid Stream	105,072	97,791	7,281
Salmonid Lake	73,488	66,593	6,895
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	3,362	3,362	0
Undesignated Lake	395	395	0
TOTAL	182,317	168,141	14,176
REGION 4			
Salmonid Stream	65,944	64,532	1,412
Salmonid Lake	75,546	74,463	1,083
Nonsalmonid Stream	1,182	1,182	0
Nonsalmonid Lake	7,652	7,652	0
Undesignated Stream	12,113	11,435	678
Undesignated Lake	1,178	1,178	0
TOTAL	163,615	160,442	3,173
REGION 5			
Salmonid Stream	71,662	70,405	1,257
Salmonid Lake	23,362	19,863	2,499
Nonsalmonid Stream	1,597	1,597	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	3,430	3,430	0
Undesignated Lake	0	0	0
TOTAL	99,051	95,295	3,756
REGION 6			
Salmonid Stream	2,798	2,798	0
Salmonid Lake	9,376	8,520	856
Nonsalmonid Stream	11,139	11,139	0
Nonsalmonid Lake	13,052	12,754	298
Undesignated Stream	1,403	1,403	0
Undesignated Lake	597	597	0
TOTAL	38,365	37,211	1,154

Table 12. Angling pressure in angler days by region by water type for the "winter" season of October '82 through April '83 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 7			
Salmonid Stream	1,551	1,381	170
Salmonid Lake	2,529	2,529	0
Nonsalmonid Stream	13,900	13,778	122
Nonsalmonid Lake	3,808	2,942	866
Undesignated Stream	793	793	0
Undesignated Lake	193	193	0
TOTAL	22,774	21,616	1,158
STATEWIDE			
Salmonid Stream	344,125	331,950	12,175
Salmonid Lake	282,652	270,445	12,207
Nonsalmonid Stream	27,818	27,696	122
Nonsalmonid Lake	34,633	33,201	1,432
Undesignated Stream	30,323	29,506	817
Undesignated Lake	2,764	2,764	0
TOTAL	722,315	695,562	26,753

Table 13. Angling pressure in angler days by drainage by water type for the 1982 "winter" angling season October '82 through April '83

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Beaverhead Drainage			
Salmonid Stream	14,518	12,842	1,676
Salmonid Lake	24,543	22,815	1,728
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	39,061	35,657	3,404
Big Hole Drainage			
Salmonid Stream	7,639	3,910	3,729
Salmonid Lake	193	193	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,165	1,165	0
Undesignated Lake	0	0	0
TOTAL	8,997	5,268	3,729

Table 13. Angling pressure in angler days by drainage by water type for the 1982 "winter" angling season October '82 through April '83 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Bitterroot Drainage			
Salmonid Stream	22,605	22,471	134
Salmonid Lake	2,579	2,579	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	390	390	0
Undesignated Lake	0	0	0
TOTAL	25,574	25,440	134
Blackfoot Drainage			
Salmonid Stream	6,145	6,145	0
Salmonid Lake	8,196	8,196	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,635	1,635	0
Undesignated Lake	0	0	0
TOTAL	15,976	15,976	0
Lower Clark Fork Drainage			
Salmonid Stream	25,409	24,029	1,380
Salmonid Lake	5,899	5,899	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,566	1,427	139
Undesignated Lake	0	0	0
TOTAL	32,874	31,355	1,519
Upper Clark Fork Drainage			
Salmonid Stream	7,626	7,626	0
Salmonid Lake	20,269	20,269	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	199	199	0
Undesignated Lake	199	199	0
TOTAL	28,293	28,293	0
Lower Flathead Drainage			
Salmonid Stream	11,218	11,218	0
Salmonid Lake	44,683	44,228	455
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	10,121	9,853	268
Undesignated Stream	2,012	2,012	0
Undesignated Lake	0	0	0
TOTAL	68,034	67,311	723

Table 13. Angling pressure in angler days by drainage by water type for the 1982 "winter" angling season October '82 through April '83 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Upper Flathead Drainage			
Salmonid Stream	4,203	4,203	0
Salmonid Lake	4,069	4,069	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,212	1,212	0
Undesignated Lake	0	0	0
TOTAL	9,484	9,484	0
Gallatin Drainage			
Salmonid Stream	17,523	16,885	638
Salmonid Lake	2,379	2,379	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	406	406	0
Undesignated Lake	0	0	0
TOTAL	20,308	19,670	638
Jefferson Drainage			
Salmonid Stream	15,460	15,460	0
Salmonid Lake	1,595	1,595	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	995	995	0
Undesignated Lake	0	0	0
TOTAL	18,050	18,050	0
Kootenai Drainage			
Salmonid Stream	19,892	19,351	541
Salmonid Lake	13,656	13,237	419
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,208	2,208	0
Undesignated Lake	202	202	0
TOTAL	35,958	34,998	960
Little Missouri Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	0	0	0
Nonsalmonid Stream	191	191	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	191	191	0

Table 13. Angling pressure in angler days by drainage by water type for the 1982 "winter" angling season October '82 through April '83 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Madison Drainage			
Salmonid Stream	14,894	13,778	1,116
Salmonid Lake	7,726	5,924	1,802
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	207	207	0
Undesignated Lake	0	0	0
TOTAL	22,827	19,909	2,918
Marias Drainage			
Salmonid Stream	2,733	2,733	0
Salmonid Lake	12,350	11,942	408
Nonsalmonid Stream	595	595	0
Nonsalmonid Lake	3,016	3,016	0
Undesignated Stream	1,158	1,158	0
Undesignated Lake	0	0	0
TOTAL	19,852	19,444	408
Milk Drainage			
Salmonid Stream	1,574	1,574	0
Salmonid Lake	7,125	6,269	856
Nonsalmonid Stream	5,732	5,732	0
Nonsalmonid Lake	2,915	2,915	0
Undesignated Stream	386	386	0
Undesignated Lake	597	597	0
TOTAL	18,329	17,473	856
Lower Missouri Drainage			
Salmonid Stream	2,611	2,611	0
Salmonid Lake	4,097	4,097	0
Nonsalmonid Stream	5,609	5,609	0
Nonsalmonid Lake	10,137	9,839	298
Undesignated Stream	3,611	3,611	0
Undesignated Lake	0	0	0
TOTAL	26,065	25,767	298
Upper Missouri Drainage			
Salmonid Stream	65,103	64,247	856
Salmonid Lake	83,969	80,604	3,365
Nonsalmonid Stream	385	385	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	6,021	6,021	0
Undesignated Lake	1,196	1,196	0
TOTAL	156,674	152,453	4,221

Table 13. Angling pressure in angler days by drainage by water type for the 1982 "winter" angling season October '82 through April '83 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Musselshell Drainage			
Salmonid Stream	7,239	6,561	678
Salmonid Lake	6,492	6,492	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	4,636	4,636	0
Undesignated Stream	3,532	2,854	678
Undesignated Lake	0	0	0
TOTAL	21,899	20,543	1,356
St Mary Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	4,865	4,190	675
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	377	377	0
TOTAL	5,242	4,567	675
Sun Drainage			
Salmonid Stream	3,367	3,367	0
Salmonid Lake	7,168	7,168	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	202	202	0
Undesignated Lake	0	0	0
TOTAL	10,737	10,737	0
Lower Yellowstone Drainage			
Salmonid Stream	1,551	1,381	170
Salmonid Lake	2,529	2,529	0
Nonsalmonid Stream	13,709	13,587	122
Nonsalmonid Lake	3,808	2,942	866
Undesignated Stream	793	793	0
Undesignated Lake	193	193	0
TOTAL	22,583	21,425	1,158
Upper Yellowstone Drainage			
Salmonid Stream	92,815	91,558	1,257
Salmonid Lake	18,270	15,771	2,499
Nonsalmonid Stream	1,597	1,597	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,625	2,625	0
Undesignated Lake	0	0	0
TOTAL	115,307	111,551	3,756

1983

Licensed anglers fishing on Montana waters exerted 2,624,708 angler days of pressure for the 1983 license year. This was down slightly (3.6%) from 1982. Residents accounted for 2,080,824 angler days (79.3%) and nonresidents made up the remaining 543,884 angler days (20.7%). Pressure estimates sorted alphabetically and by pressure are given in appendixes 1983A through 1983F.

The pressure distributed between Fish, Wildlife and Parks regions (Figure 1) emphasizes the trout fishery (Chart 1). Region 3 received the most pressure with 700,519 angler days (26.7%), while region 1 was next with 522,650 (19.9%) angler days. Region 4 had 468,122 (17.8%) angler days. Regions 2 and 5 were next in pressure with 354,001 (13.5%) and 323,818 (12.3%) angler days respectively. The predominately warm water regions, 6 and 7, were the lowest in pressure with 168,694 (6.4%) and 82,849 (3.2%) angler days respectively. Individual water estimates by regions are given in appendixes 1983G through 1983M.

The definite majority of the angling in Montana was directed toward trout. Salmonid waters accounted for 86.8% (2,279,428 angler days) of the statewide pressure while nonsalmonid waters accounted for 8.5% (221,771 angler days) of the pressure. Undesignated waters accounted for 4.7% (123,509 angler days) of the total pressure (Chart 2). An undesignated water is one that could not not be coded to an individual water, and thus water type, with the information provided and was assigned a generic code based on drainage and county.

Within salmonid waters, the streams received slightly more pressure than the lakes, 53.0% versus 47.0%. The nonsalmonids were reversed with the lakes receiving 55.1% and the streams 44.9% of the pressure.

Salmonid angling dominated the pressure in regions 1, 2, 3, 4, and 5, while regions 6 and 7 were predominately nonsalmonid angling (Chart 12, Table 14).

Table 14. Angling pressure in angler days by region by water type for the 1983 angling year - May '83 Through April '84

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	160,322	128,704	31,618
Salmonid Lake	315,456	257,212	58,244
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	25,182	24,569	613
Undesignated Stream	15,720	11,640	4,080
Undesignated Lake	5,970	3,197	2,773
TOTAL	522,650	425,322	97,328

Table 14. Angling pressure in angler days by region by water type for the 1983 angling year - May '83 through April '84 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 2			
Salmonid Stream	219,722	174,611	45,111
Salmonid Lake	119,004	103,274	15,730
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	11,596	6,717	4,879
Undesignated Lake	3,679	3,113	566
TOTAL	354,001	287,715	66,286
REGION 3			
Salmonid Stream	430,128	267,599	162,529
Salmonid Lake	244,497	168,294	76,203
Nonsalmonid Stream	4,859	4,859	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	17,746	10,123	7,623
Undesignated Lake	3,289	1,120	2,169
TOTAL	700,519	451,995	248,524
REGION 4			
Salmonid Stream	189,565	166,731	22,834
Salmonid Lake	227,954	202,650	25,304
Nonsalmonid Stream	12,421	12,148	273
Nonsalmonid Lake	11,779	11,370	409
Undesignated Stream	17,420	15,637	1,783
Undesignated Lake	8,983	6,120	2,863
TOTAL	468,122	414,656	53,466
REGION 5			
Salmonid Stream	195,427	162,348	33,079
Salmonid Lake	110,465	94,302	16,163
Nonsalmonid Stream	1,718	1,718	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	10,911	8,191	2,720
Undesignated Lake	4,672	3,240	1,432
TOTAL	323,818	270,219	53,599
REGION 6			
Salmonid Stream	10,805	10,601	204
Salmonid Lake	50,096	48,338	1,758
Nonsalmonid Stream	32,745	30,918	1,827
Nonsalmonid Lake	63,749	62,103	1,646
Undesignated Stream	7,414	7,278	136
Undesignated Lake	3,885	3,476	409
TOTAL	168,694	162,714	5,980

Table 14. Angling pressure in angler days by region by water type for the 1983 angling year - May '83 through April '84 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 7			
Salmonid Stream	2,977	2,016	961
Salmonid Lake	3,010	3,010	0
Nonsalmonid Stream	47,867	39,867	8,000
Nonsalmonid Lake	20,826	15,042	5,784
Undesignated Stream	3,076	2,735	341
Undesignated Lake	5,093	4,480	613
TOTAL	82,849	67,150	15,699
STATEWIDE			
Salmonid Stream	1,208,946	912,610	296,336
Salmonid Lake	1,070,482	877,080	193,402
Nonsalmonid Stream	99,610	89,510	10,100
Nonsalmonid Lake	122,161	113,504	8,657
Undesignated Stream	87,938	63,374	24,564
Undesignated Lake	35,571	24,746	10,825
TOTAL	2,624,708	2,080,824	543,884

Residents dominated the pressure in all regions with region 3 leading the rest of the regions in angling pressure (Chart 13). In region 1 residents accounted for 81.4% and nonresidents 18.6% of the regional pressure. Salmonid lake fishing made up 60.4% of the total angling pressure within the region (Chart 5). Region 1 had the largest pressure for the state salmonid lakes with 29.5% of the statewide salmonid lake pressure.

Within region 2 residents and nonresidents accounted for 81.3% and 18.7% of the regional pressure respectively. Salmonid stream fishing accounted for 62.1% of the total regional angling pressure (Chart 6).

Within region 3 residents accounted for 64.5% of the regional pressure and nonresidents made up the remaining 35.5% of the pressure. Salmonid stream fishing was the largest for any region accounting for 35.6% of the statewide total. Within the region, salmonid stream fishing dominated with 61.4% of the regional pressure (Chart 7).

In region 4 residents and nonresidents accounted for 88.6% and 11.4% of the regional pressure respectively. Like region 1, most of region 4's pressure came from salmonid lakes (48.7%) (Chart 8).

Within region 5 residents accounted for 83.4% and nonresidents 16.6% of the regional pressure. Salmonid streams provided the majority of the pressure (60.4%) within the region (Chart 9).

In regions 6 and 7, residents provided 96.5% and 81.1% of the pressure respectively. Regions 6 and 7 provided the majority of the states nonsalmonid fishing. Region 6 maintained the states largest

pressure for nonsalmonid lakes (52.2%) (Chart 10), while region 7 maintained the largest pressure for nonsalmonid streams (48.1%) (Chart 11).

August (wave 8) was the peak fishing month overall (Table 15). Wave 6 has more pressure but contains two months (May and June). Waves 14, 15, 16, and 17 are half months, so the pressure for waves 14 and 15 was added as was the pressure for waves 16 and 17 to make the relative monthly comparisons. Residents fished more during July while nonresidents preferred August. The majority of the nonresident pressure (68.9%) was exerted by the 2-day permit holders. Since these anglers are sampled on an annual basis the pressure could not be broken into waves although it can be logically assigned to the summer season.

Table 15. Pressure in angler days by waves by residency for 1983

WAVE	TOTAL	RESIDENTS	NONRESIDENTS
1	87,473	85,531	1,942
2	69,456	67,909	1,547
6	566,969	524,865	42,104
7	396,733	371,382	25,351
8	416,100	359,880	56,220
9	209,872	193,596	16,276
10	134,979	126,679	8,300
11	77,374	71,459	5,915
12	51,365	50,902	463
13	374,873		374,873
14	53,078	52,564	514
15	36,996	33,764	3,232
16	53,180	49,555	3,625
17	96,260	92,738	3,522

Angling pressure was summarized by the 22 major drainages within the state (Table 16). See the discussion under 1982 for a description of the drainage areas. The pressure ranged from 388,838 angler days for the upper Missouri River drainage to 1,571 angler days for the Little Missouri River drainage. This was consistent with the angling pressure in 1982.

Statewide Angling Pressure
Comparing Regional Water Types
1983

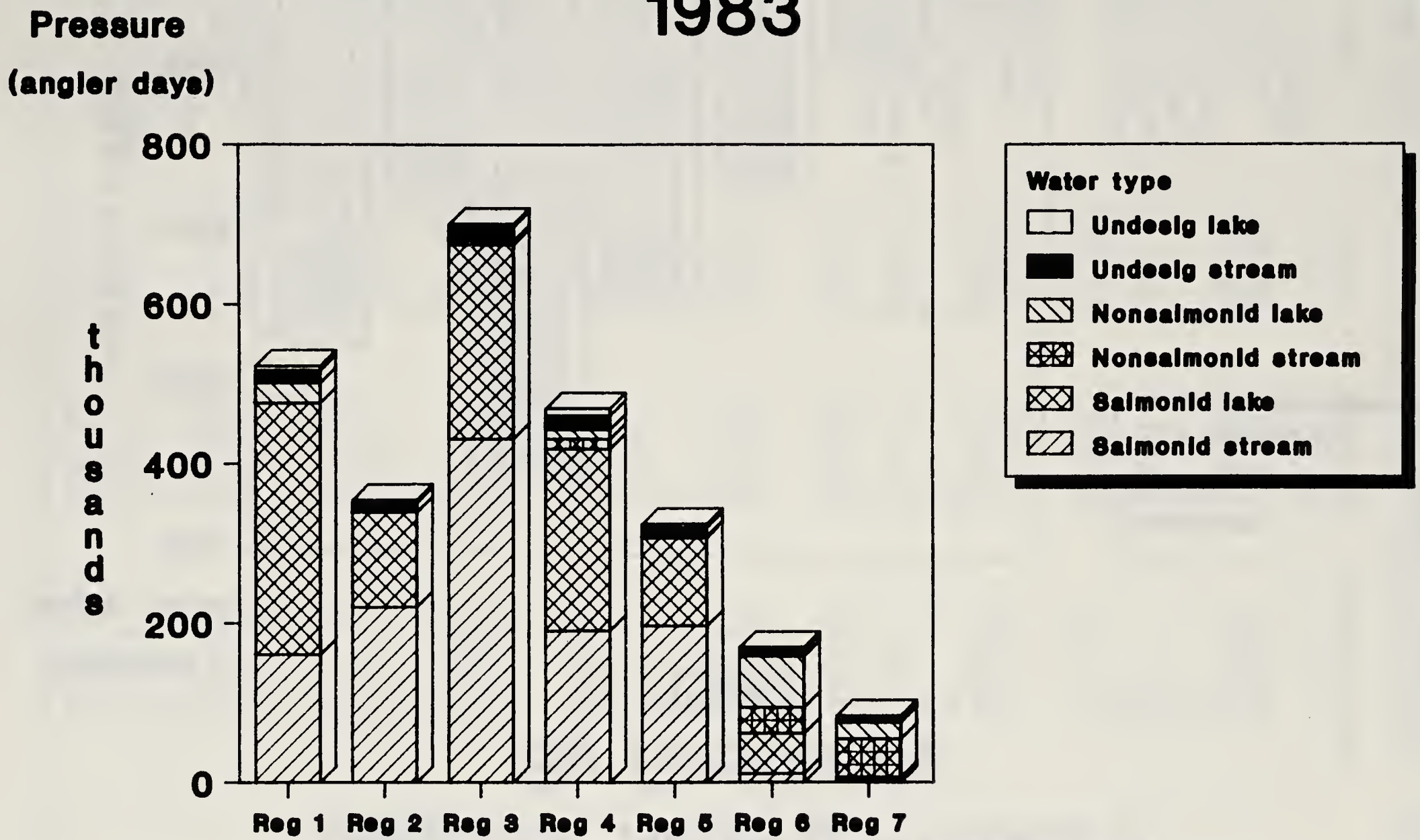


Chart 12. Amount of licensed angling pressure in angler days for each FWP region by water type for 1983

Regional Angling Pressure By Residency 1983

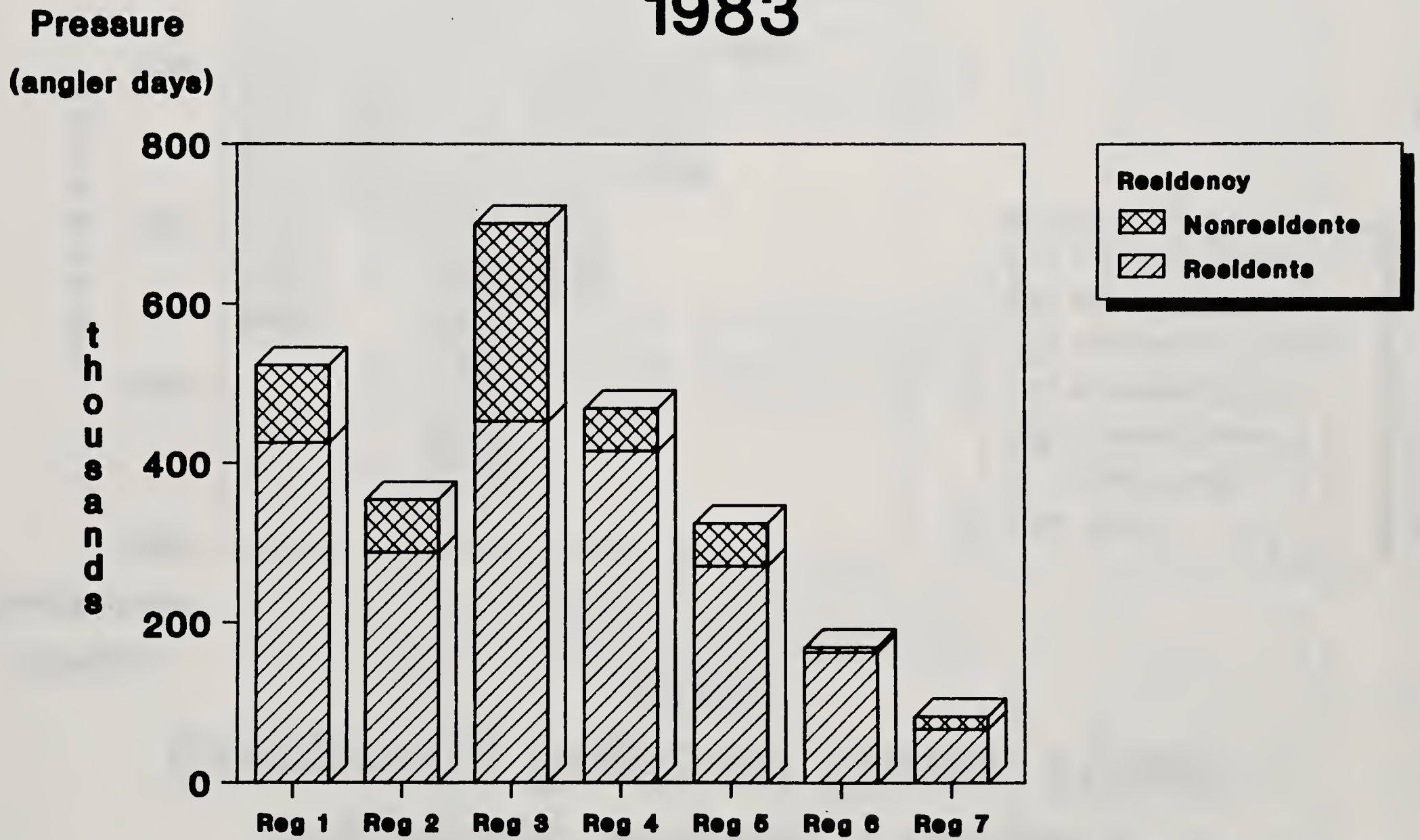


Chart 13. Amount of licensed angling pressure in angler days for each FWP region by residency for 1983

Table 16. Angling pressure in angler days by drainage by water type for the 1983 angling year May '83 through April '84

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Beaverhead Drainage			
Salmonid Stream	50,091	31,402	18,689
Salmonid Lake	42,480	23,693	18,787
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,164	506	658
Undesignated Lake	0	0	0
TOTAL	93,735	55,601	38,134
Big Hole Drainage			
Salmonid Stream	68,364	49,221	19,143
Salmonid Lake	5,616	3,528	2,088
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,695	610	1,085
Undesignated Lake	0	0	0
TOTAL	75,675	53,359	22,316
Bitterroot Drainage			
Salmonid Stream	78,117	63,287	14,830
Salmonid Lake	13,407	11,532	1,875
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	3,812	2,112	1,700
Undesignated Lake	702	204	498
TOTAL	96,038	77,135	18,903
Blackfoot Drainage			
Salmonid Stream	36,731	28,460	8,271
Salmonid Lake	36,461	31,457	5,004
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,977	1,977	0
Undesignated Lake	1,232	1,232	0
TOTAL	76,401	63,126	13,275
Lower Clark Fork Drainage			
Salmonid Stream	84,998	67,445	17,553
Salmonid Lake	21,113	16,602	4,511
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	5,130	2,316	2,814
Undesignated Lake	1,842	1,661	181
TOTAL	113,083	88,024	25,059

Table 16. Angling pressure in angler days by drainage by water type for the 1983 angling year May '83 through April '84 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Upper Clark Fork Drainage			
Salmonid Stream	50,822	39,859	10,963
Salmonid Lake	65,095	56,987	8,108
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,178	1,427	751
Undesignated Lake	274	206	68
TOTAL	118,369	98,479	19,890
Lower Flathead Drainage			
Salmonid Stream	63,146	56,229	6,917
Salmonid Lake	219,060	180,541	38,519
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	25,182	24,569	613
Undesignated Stream	7,243	5,321	1,922
Undesignated Lake	1,955	1,477	478
TOTAL	316,586	268,137	48,449
Upper Flathead Drainage			
Salmonid Stream	17,162	10,250	6,912
Salmonid Lake	21,935	19,048	2,887
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	5,085	3,517	1,568
Undesignated Lake	517	381	136
TOTAL	44,699	33,196	11,503
Gallatin Drainage			
Salmonid Stream	78,374	60,938	17,436
Salmonid Lake	12,630	9,624	3,006
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	4,180	2,785	1,395
Undesignated Lake	460	0	460
TOTAL	95,644	73,347	22,297
Jefferson Drainage			
Salmonid Stream	33,749	29,448	4,301
Salmonid Lake	21,454	18,580	2,874
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,223	404	819
Undesignated Lake	768	700	68
TOTAL	57,194	49,132	8,062

Table 16. Angling pressure in angler days by drainage by water type for the 1983 angling year May '83 through April '84 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Kootenai Drainage			
Salmonid Stream	50,132	38,849	11,283
Salmonid Lake	57,389	44,319	13,070
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,096	1,687	409
Undesignated Lake	3,127	1,149	1,978
TOTAL	112,744	86,004	26,740
Little Missouri Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	0	0	0
Nonsalmonid Stream	1,051	1,051	0
Nonsalmonid Lake	190	190	0
Undesignated Stream	0	0	0
Undesignated Lake	330	194	136
TOTAL	1,571	1,435	136
Madison Drainage			
Salmonid Stream	13,2736	50,098	82,638
Salmonid Lake	79,530	37,824	41,706
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	4,641	2,147	2,494
Undesignated Lake	1,561	210	1,351
TOTAL	218,468	90,279	128,189
Marias Drainage			
Salmonid Stream	7,580	7,580	0
Salmonid Lake	35,821	29,819	6,002
Nonsalmonid Stream	2,151	2,151	0
Nonsalmonid Lake	6,927	6,654	273
Undesignated Stream	2,632	2,092	540
Undesignated Lake	984	916	68
TOTAL	56,095	49,212	6,883
Milk Drainage			
Salmonid Stream	3,896	3,760	136
Salmonid Lake	36,188	35,234	954
Nonsalmonid Stream	15,806	15,601	205
Nonsalmonid Lake	17,214	16,942	272
Undesignated Stream	3,886	3,682	204
Undesignated Lake	2,353	2,217	136
TOTAL	79,343	77,436	1,907

Table 16. Angling pressure in angler days by drainage by water type for the 1983 angling year May '83 through April '84 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Missouri Drainage			
Salmonid Stream	30,019	28,497	1,522
Salmonid Lake	25,828	23,875	1,953
Nonsalmonid Stream	18,549	16,791	1,758
Nonsalmonid Lake	48,234	46,724	1,510
Undesignated Stream	8,702	8,497	205
Undesignated Lake	2,437	2,028	409
TOTAL	133,769	126,412	7,357
Upper Missouri Drainage			
Salmonid Stream	154,031	135,526	18,505
Salmonid Lake	208,270	195,292	12,978
Nonsalmonid Stream	14,073	13,800	273
Nonsalmonid Lake	0	0	0
Undesignated Stream	6,684	5,326	1,358
Undesignated Lake	5,780	3,621	2,159
TOTAL	388,838	353,565	35,273
Musselshell Drainage			
Salmonid Stream	15,931	15,053	878
Salmonid Lake	34,119	33,787	332
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	3,709	3,573	136
Undesignated Stream	7,450	6,952	498
Undesignated Lake	2,237	1,760	477
TOTAL	63,446	61,125	2,321
St Mary Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	12,742	2,396	10,346
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	136	0	136
TOTAL	12,878	2,396	10,482
Sun Drainage			
Salmonid Stream	16,851	12,608	4,243
Salmonid Lake	26,478	24,649	1,829
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	341	0	341
TOTAL	43,670	37,257	6,413

Table 16. Angling pressure in angler days by drainage by water type for the 1983 angling year May '83 through April '84 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Yellowstone Drainage			
Salmonid Stream	2,977	2,016	961
Salmonid Lake	3,010	3,010	0
Nonsalmonid Stream	46,262	38,398	7,864
Nonsalmonid Lake	20,500	14,852	5,648
Undesignated Stream	2,866	2,525	341
Undesignated Lake	4,763	4,286	477
TOTAL	80,378	65,087	15,291
Upper Yellowstone Drainage			
Salmonid Stream	233,239	182,084	51,155
Salmonid Lake	91,856	75,283	16,573
Nonsalmonid Stream	1,718	1,718	0
Nonsalmonid Lake	205	0	205
Undesignated Stream	11,239	8,438	2,801
Undesignated Lake	3,772	2,504	1,268
TOTAL	342,029	270,027	72,002

The "summer" season for angling in Montana is considered as that period of the year between the first of May through the end of September. In 1983 1,965,010 (74.9%) days of the angling pressure occurred during this period (Table 17).

Percentage of angling pressure within each region was very similar to the annual percentages with region 3 having the greatest difference (+2.1%). The majority of pressure occurs during the "summer" season for every region. Regions 1 and 7 lead the way with 80%, regions 1 and 5 have 75%, regions 2 and 6 have 70% while region 4 has 65% of the pressure occurring during this period.

"Summer" angling pressure by drainage (Table 18) ranged from 261,790 angler days for the upper Yellowstone River drainage to 1381 angler days for the Little Missouri River drainage.

Table 17. Angling pressure in angler days by region by water type for the "summer" season of May '83 through September '83

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	142,801	111,906	30,895
Salmonid Lake	229,670	172,452	57,218
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	18,871	18,258	613
Undesignated Stream	14,500	10,420	4,080
Undesignated Lake	4,445	1,672	2,773
TOTAL	410,287	314,708	95,579
REGION 2			
Salmonid Stream	148,483	109,662	38,821
Salmonid Lake	85,828	72,156	13,672
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	9,633	4,754	4,879
Undesignated Lake	2,790	2,518	272
TOTAL	246,734	189,090	57,644
REGION 3			
Salmonid Stream	355,683	197,992	157,691
Salmonid Lake	187,593	113,762	73,831
Nonsalmonid Stream	4,859	4,859	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	14,976	7,473	7,503
Undesignated Lake	2,783	614	2,169
TOTAL	565,894	324,700	241,194
REGION 4			
Salmonid Stream	128,263	106,257	22,006
Salmonid Lake	151,018	127,629	23,389
Nonsalmonid Stream	8,049	7,776	273
Nonsalmonid Lake	7,825	7,416	409
Undesignated Stream	11,493	10,250	1,243
Undesignated Lake	5,644	2,781	2,863
TOTAL	312,292	262,109	50,183

Table 17. Angling pressure in angler days by region by water type for the "summer" season of May '83 through September '83 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 5			
Salmonid Stream	148,052	118,132	29,920
Salmonid Lake	82,752	67,047	15,705
Nonsalmonid Stream	615	615	0
Nonsalmonid Lake	625	420	205
Undesignated Stream	8,613	5,893	2,720
Undesignated Lake	3,556	2,124	1,432
TOTAL	244,213	194,231	49,982
REGION 6			
Salmonid Stream	10,192	9,988	204
Salmonid Lake	34,751	32,993	1,758
Nonsalmonid Stream	17,262	15,435	1,827
Nonsalmonid Lake	48,284	46,638	1,646
Undesignated Stream	4,079	3,943	136
Undesignated Lake	1,478	1,069	409
TOTAL	116,046	110,066	5,980
REGION 7			
Salmonid Stream	819	615	204
Salmonid Lake	1,697	1,697	0
Nonsalmonid Stream	37,906	33,035	4,871
Nonsalmonid Lake	18,419	13,260	5,159
Undesignated Stream	3,076	2,735	341
Undesignated Lake	3,572	2,959	613
TOTAL	65,489	54,301	11,188
STATEWIDE			
Salmonid Stream	934,293	654,552	279,741
Salmonid Lake	773,309	587,336	185,573
Nonsalmonid Stream	68,691	61,720	6,971
Nonsalmonid Lake	94,024	85,992	8,032
Undesignated Stream	70,425	46,521	23,904
Undesignated Lake	24,268	13,737	10,531
TOTAL	1,965,010	1,450,258	514,752

Table 18. Angling pressure in angler days by drainage by water type for the 1983 "summer" angling season May '83 through September '83

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Beaverhead Drainage			
Salmonid Stream	39,139	21,297	17,842
Salmonid Lake	32,003	13,476	18,527
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	658	0	658
Undesignated Lake	0	0	0
TOTAL	71,800	34,773	37,027
Big Hole Drainage			
Salmonid Stream	60,126	40,983	19,143
Salmonid Lake	5,616	3,528	2,088
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,291	206	1,085
Undesignated Lake	0	0	0
TOTAL	67,033	44,717	22,316
Bitterroot Drainage			
Salmonid Stream	55,109	41,608	13,501
Salmonid Lake	9,963	8,382	1,581
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	3,395	1,695	1,700
Undesignated Lake	204	0	204
TOTAL	68,671	51,685	16,986
Blackfoot Drainage			
Salmonid Stream	27,332	19,869	7,463
Salmonid Lake	27,877	22,993	4,884
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	635	635	0
Undesignated Lake	841	841	0
TOTAL	56,685	44,338	12,347
Lower Clark Fork Drainage			
Salmonid Stream	61,560	45,987	15,573
Salmonid Lake	13,759	9,368	4,391
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	4,922	2,108	2,814
Undesignated Lake	1,652	1,471	181
TOTAL	81,893	58,934	22,959

Table 18. Angling pressure in angler days by drainage by water type for the 1983 "summer" angling season May '83 through September '83 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Upper Clark Fork Drainage			
Salmonid Stream	32,327	23,537	8,790
Salmonid Lake	44,143	37,679	6,464
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,974	1,223	751
Undesignated Lake	274	206	68
TOTAL	78,718	62,645	16,073
Lower Flathead Drainage			
Salmonid Stream	54,741	47,824	6,917
Salmonid Lake	166,713	128,464	38,249
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	18,871	18,258	613
Undesignated Stream	6,648	4,726	1,922
Undesignated Lake	1,955	1,477	478
TOTAL	248,928	200,749	48,179
Upper Flathead Drainage			
Salmonid Stream	16,326	9,414	6,912
Salmonid Lake	18,901	16,014	2,887
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	4,668	3,100	1,568
Undesignated Lake	136	0	136
TOTAL	40,031	28,528	11,503
Gallatin Drainage			
Salmonid Stream	63,412	46,096	17,316
Salmonid Lake	10,503	7,497	3,006
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	4,180	2,785	1,395
Undesignated Lake	460	0	460
TOTAL	78,555	56,378	22,177
Jefferson Drainage			
Salmonid Stream	28,170	23,989	4,181
Salmonid Lake	16,089	13,215	2,874
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,029	210	819
Undesignated Lake	262	194	68
TOTAL	45,550	37,608	7,942

Table 18. Angling pressure in angler days by drainage by water type for the 1983 "summer" angling season May '83 through September '83 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Kootenai Drainage			
Salmonid Stream	44,953	34,393	10,560
Salmonid Lake	34,142	21,708	12,434
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,096	1,687	409
Undesignated Lake	2,173	195	1,978
TOTAL	83,364	57,983	25,381
Little Missouri Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	0	0	0
Nonsalmonid Stream	1,051	1,051	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	330	194	136
TOTAL	1,381	1,245	136
Madison Drainage			
Salmonid Stream	111,955	31,944	80,011
Salmonid Lake	72,867	33,023	39,844
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	3,602	1,228	2,374
Undesignated Lake	1,561	210	1,351
TOTAL	189,985	66,405	123,580
Marias Drainage			
Salmonid Stream	6,844	6,844	0
Salmonid Lake	25,760	19,888	5,872
Nonsalmonid Stream	1,662	1,662	0
Nonsalmonid Lake	5,122	4,849	273
Undesignated Stream	2,442	1,902	540
Undesignated Lake	283	215	68
TOTAL	42,113	35,360	6,753
Milk Drainage			
Salmonid Stream	3,896	3,760	136
Salmonid Lake	21,237	20,283	954
Nonsalmonid Stream	7,279	7,074	205
Nonsalmonid Lake	8,077	7,805	272
Undesignated Stream	2,505	2,301	204
Undesignated Lake	136	0	136
TOTAL	43,130	41,223	1,907

Table 18. Angling pressure in angler days by drainage by water type for the 1983 "summer" angling season May '83 through September '83 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Missouri Drainage			
Salmonid Stream	20,683	19,161	1,522
Salmonid Lake	20,607	18,654	1,953
Nonsalmonid Stream	10,548	8,790	1,758
Nonsalmonid Lake	40,343	38,833	1,510
Undesignated Stream	4,586	4,381	205
Undesignated Lake	1,478	1,069	409
TOTAL	98,245	90,888	7,357
Upper Missouri Drainage			
Salmonid Stream	101,277	83,581	17,696
Salmonid Lake	130,070	117,624	12,446
Nonsalmonid Stream	10,817	10,544	273
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,871	2,053	818
Undesignated Lake	4,296	2,137	2,159
TOTAL	249,331	215,939	33,392
Musselshell Drainage			
Salmonid Stream	13,354	12,476	878
Salmonid Lake	24,731	24,399	332
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	3,123	2,987	136
Undesignated Stream	6,156	5,658	498
Undesignated Lake	1,116	639	477
TOTAL	48,480	46,159	2,321
St Mary Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	9,053	210	8,843
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	136	0	136
TOTAL	9,189	210	8,979
Sun Drainage			
Salmonid Stream	12,500	8,517	3,983
Salmonid Lake	19,616	17,787	1,829
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	341	0	341
TOTAL	32,457	26,304	6,153

Table 18. Angling pressure in angler days by drainage by water type for the 1983 "summer" angling season May '83 through September '83 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Yellowstone Drainage			
Salmonid Stream	819	615	204
Salmonid Lake	1,697	1,697	0
Nonsalmonid Stream	36,719	31,984	4,735
Nonsalmonid Lake	18,283	13,260	5,023
Undesignated Stream	2,866	2,525	341
Undesignated Lake	3,242	2,765	477
TOTAL	63,626	52,846	10,780
Upper Yellowstone Drainage			
Salmonid Stream	179,770	132,657	47,113
Salmonid Lake	67,962	51,847	16,115
Nonsalmonid Stream	615	615	0
Nonsalmonid Lake	205	0	205
Undesignated Stream	9,846	7,045	2,801
Undesignated Lake	3,392	2,124	1,268
TOTAL	261,790	194,288	67,502

The "winter" season for angling is from the first of October through April of the following year. In 1983, 659,701 angler days (25.1%) of the annual fishing pressure occurred during this period (Table 19). The pressure from region to region ranged from a high of 155,834 angler days for Region 4 to a low of 17,358 angler days for Region 7.

"Winter" angling pressure (Table 20) by drainage ranged from 139,509 angler days for the Upper Missouri River drainage to 190 angler days for the Little Missouri River drainage in Eastern Montana.

Table 19. Angling pressure in angler days by region by water type for the "winter" season of October '83 through April '84

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	17,523	16,799	724
Salmonid Lake	85,785	84,756	1,029
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	6,310	6,310	0
Undesignated Stream	1,221	1,221	0
Undesignated Lake	1,524	1,524	0
TOTAL	112,363	110,610	1,753
REGION 2			
Salmonid Stream	71,239	64,944	6,295
Salmonid Lake	33,176	31,117	2,059
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,964	1,964	0
Undesignated Lake	889	595	294
TOTAL	107,268	98,620	8,648
REGION 3			
Salmonid Stream	74,444	69,603	4,841
Salmonid Lake	56,904	54,531	2,373
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,770	2,649	121
Undesignated Lake	506	506	0
TOTAL	134,624	127,289	7,335
REGION 4			
Salmonid Stream	61,302	60,474	828
Salmonid Lake	76,939	75,022	1,917
Nonsalmonid Stream	4,373	4,373	0
Nonsalmonid Lake	3,954	3,954	0
Undesignated Stream	5,928	5,388	540
Undesignated Lake	3,338	3,338	0
TOTAL	155,834	152,549	3,285

Table 19. Angling pressure in angler days by region by water type for the "winter" season of October '83 through April '84 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 5			
Salmonid Stream	47,374	44,214	3,160
Salmonid Lake	27,713	27,257	456
Nonsalmonid Stream	1,103	1,103	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,298	2,298	0
Undesignated Lake	1,116	1,116	0
TOTAL	79,604	75,988	3,616
REGION 6			
Salmonid Stream	613	613	0
Salmonid Lake	15,345	15,345	0
Nonsalmonid Stream	15,483	15,483	0
Nonsalmonid Lake	15,466	15,466	0
Undesignated Stream	3,336	3,336	0
Undesignated Lake	2,407	2,407	0
TOTAL	52,650	52,650	0
REGION 7			
Salmonid Stream	2,157	1,400	757
Salmonid Lake	1,314	1,314	0
Nonsalmonid Stream	9,961	6,832	3,129
Nonsalmonid Lake	2,406	1,781	625
Undesignated Stream	0	0	0
Undesignated Lake	1,520	1,520	0
TOTAL	17,358	12,847	4,511
STATEWIDE			
Salmonid Stream	274,652	258,047	16,605
Salmonid Lake	297,176	289,342	7,834
Nonsalmonid Stream	30,920	27,791	3,129
Nonsalmonid Lake	28,136	27,511	625
Undesignated Stream	17,517	16,856	661
Undesignated Lake	11,300	11,006	294
TOTAL	659,701	630,553	29,148

Table 20. Angling pressure in angler days by drainage by water type for the 1983 "winter" angling season October '83 through April '84

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Beaverhead Drainage			
Salmonid Stream	10,953	10,106	847
Salmonid Lake	10,477	10,217	260
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	506	506	0
Undesignated Lake	0	0	0
TOTAL	21,936	20,829	1,107
Big Hole Drainage			
Salmonid Stream	8,238	8,238	0
Salmonid Lake	0	0	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	404	404	0
Undesignated Lake	0	0	0
TOTAL	8,642	8,642	0
Bitterroot Drainage			
Salmonid Stream	23,008	21,677	1,331
Salmonid Lake	3,443	3,149	294
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	418	418	0
Undesignated Lake	498	204	294
TOTAL	27,367	25,448	1,919
Blackfoot Drainage			
Salmonid Stream	9,399	8,589	810
Salmonid Lake	8,585	8,464	121
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,342	1,342	0
Undesignated Lake	391	391	0
TOTAL	19,717	18,786	931
Lower Clark Fork Drainage			
Salmonid Stream	23,439	21,458	1,981
Salmonid Lake	7,353	7,232	121
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	209	209	0
Undesignated Lake	190	190	0
TOTAL	31,191	29,089	2,102

Table 20. Angling pressure in angler days by drainage by water type for the 1983 "winter" angling season October '83 through April '84 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Upper Clark Fork Drainage			
Salmonid Stream	18,494	16,321	2,173
Salmonid Lake	20,953	19,309	1,644
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	204	204	0
Undesignated Lake	0	0	0
TOTAL	39,651	35,834	3,817
Lower Flathead Drainage			
Salmonid Stream	8,406	8,406	0
Salmonid Lake	52,345	52,075	270
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	6,310	6,310	0
Undesignated Stream	594	594	0
Undesignated Lake	0	0	0
TOTAL	67,655	67,385	270
Upper Flathead Drainage			
Salmonid Stream	836	836	0
Salmonid Lake	3,034	3,034	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	418	418	0
Undesignated Lake	380	380	0
TOTAL	4,668	4,668	0
Gallatin Drainage			
Salmonid Stream	14,961	14,840	121
Salmonid Lake	2,127	2,127	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	17,088	16,967	121
Jefferson Drainage			
Salmonid Stream	5,578	5,457	121
Salmonid Lake	5,365	5,365	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	194	194	0
Undesignated Lake	506	506	0
TOTAL	11,643	11,522	121

Table 20. Angling pressure in angler days by drainage by water type for the 1983 "winter" angling season October '83 through April '84 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Kootenai Drainage			
Salmonid Stream	5,180	4,456	724
Salmonid Lake	23,248	22,610	638
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	954	954	0
TOTAL	29,382	28,020	1,362
Little Missouri Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	0	0	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	190	190	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	190	190	0
Madison Drainage			
Salmonid Stream	20,780	18,153	2,627
Salmonid Lake	6,663	4,801	1,862
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,039	918	121
Undesignated Lake	0	0	0
TOTAL	28,482	23,872	4,610
Marias Drainage			
Salmonid Stream	736	736	0
Salmonid Lake	10,061	9,931	130
Nonsalmonid Stream	490	490	0
Nonsalmonid Lake	1,805	1,805	0
Undesignated Stream	190	190	0
Undesignated Lake	701	701	0
TOTAL	13,983	13,853	130
Milk Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	14,951	14,951	0
Nonsalmonid Stream	8,526	8,526	0
Nonsalmonid Lake	9,137	9,137	0
Undesignated Stream	1,382	1,382	0
Undesignated Lake	2,217	2,217	0
TOTAL	36,213	36,213	0

Table 20. Angling pressure in angler days by drainage by water type for the 1983 "winter" angling season October '83 through April '84 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Missouri Drainage			
Salmonid Stream	9,336	9,336	0
Salmonid Lake	5,221	5,221	0
Nonsalmonid Stream	8,002	8,002	0
Nonsalmonid Lake	7,892	7,892	0
Undesignated Stream	4,116	4,116	0
Undesignated Lake	959	959	0
TOTAL	35,526	35,526	0
Upper Missouri Drainage			
Salmonid Stream	52,754	51,944	810
Salmonid Lake	78,202	77,668	534
Nonsalmonid Stream	3,256	3,256	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	3,813	3,273	540
Undesignated Lake	1,484	1,484	0
TOTAL	139,509	137,625	1,884
Musselshell Drainage			
Salmonid Stream	2,575	2,575	0
Salmonid Lake	9,388	9,388	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	586	586	0
Undesignated Stream	1,295	1,295	0
Undesignated Lake	1,120	1,120	0
TOTAL	14,964	14,964	0
St Mary Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	3,689	2,185	1,504
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	3,689	2,185	1,504
Sun Drainage			
Salmonid Stream	4,351	4,091	260
Salmonid Lake	6,863	6,863	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	11,214	10,954	260

Table 20. Angling pressure in angler days by drainage by water type for the 1983 "winter" angling season October '83 through April '84 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Yellowstone Drainage			
Salmonid Stream	2,157	1,400	757
Salmonid Lake	1,314	1,314	0
Nonsalmonid Stream	9,543	6,414	3,129
Nonsalmonid Lake	2,216	1,591	625
Undesignated Stream	0	0	0
Undesignated Lake	1,520	1,520	0
TOTAL	16,750	12,239	4,511
Upper Yellowstone Drainage			
Salmonid Stream	53,471	49,428	4,043
Salmonid Lake	23,894	23,438	456
Nonsalmonid Stream	1,103	1,103	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,393	1,393	0
Undesignated Lake	380	380	0
TOTAL	80,241	75,742	4,499

1984

Licensed anglers fishing on Montana waters exerted 2,197,402 angler days of pressure for the 1984 license year. Residents accounted for 1,834,842 man days (83.5%) and nonresidents made up the remaining 362,560 angler days (16.5%). Individual water estimates sorted alphabetically and by pressure are given appendixes 1984A through 1984F.

The pressure distributed between Fish, Wildlife and Parks regions (Figure 1) emphasizes the cold water fishery (Chart 1). Region 3 received 579,309 angler days (26.4%), region 4 was next with 472,777 (21.5%) angler days, while region 1 had 380,264 (17.3%) angler days. Region 2 was next in pressure with 332,223 (15.1%) angler days. Region 5 had a pressure of 247,303 (11.3%) angler days. The warm water regions of 6 and 7 were the lowest in pressure with 120,043 (5.5%) and 61,274 (2.8%) angler days respectively. Individual water estimates by regions are given in Appendixes 1984G through 1984M.

Angling in Montana was directed toward trout. Salmonid waters accounted for 89.7% (1,970,756 angler days) of the statewide pressure while nonsalmonid accounted for 7.9% (172,735 angler days) of the pressure and undesignated waters accounted for 2.4% (53,911 angler days) of the pressure (Chart 2). An undesignated water is one that could not be coded to an individual water, and thus water type, with the information provided and was assigned a generic code based on drainage and county.

Within salmonid waters, the streams received slightly more pressure than the lakes, 55.5% versus 44.5%. Within the nonsalmonid waters streams received slightly more pressure than lakes (52.9% versus 47.1%)

Salmonid angling dominated the pressure in regions 1, 2, 3, 4, and 5. Regions 6 and 7 were predominately nonsalmonid angling (Chart 14, Table 21).

Residents dominated the pressure in all regions (Chart 15). In region 1 residents accounted for 85.2% and nonresidents 14.8% of the regional pressure. Salmonid lake fishing dominated with 64.0% of the total angling pressure within the region (Chart 5). Salmonid lake fishing was the largest for any region accounting for 27.8% of the statewide annual total. The majority (85.1%) of this pressure was exerted by residents.

In region 2 residents and nonresidents accounted for 85.1% and 14.9% of the regional pressure respectively. Salmonid stream fishing was dominate accounting for 71.4% of the total regional angling pressure (Chart 6).

Statewide Angling Pressure
Comparing Regional Water Types
1984

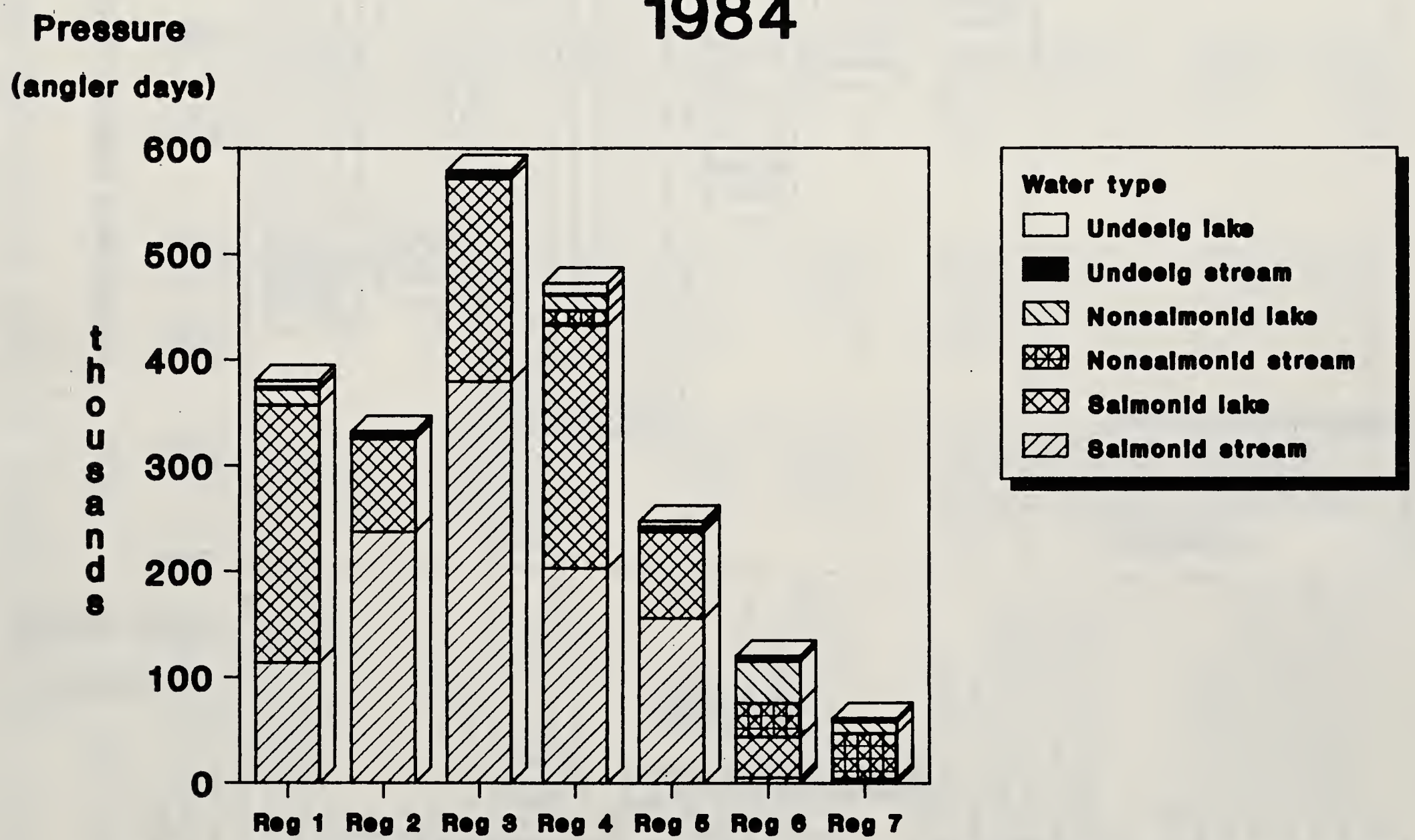


Chart 14. Amount of licensed angling pressure in angler days for each FWP region by water type for 1984

Regional Angling Pressure By Residency 1984

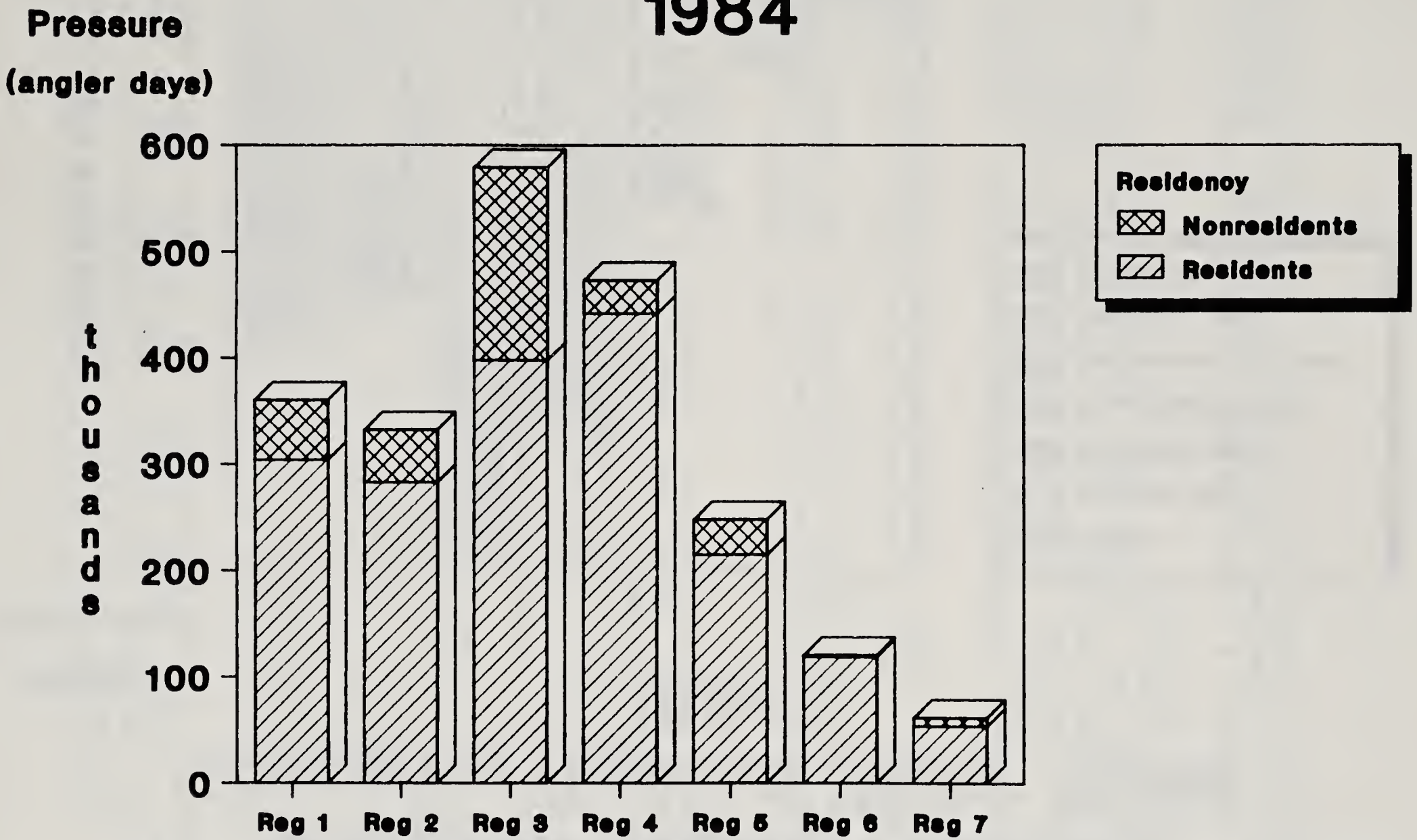


Chart 15. Amount of licensed angling pressure in angler days for each FWP region by residency for 1984

Table 21. Angling pressure in angler days by region by water type for the 1984 angling year

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	113,376	94,634	18,742
Salmonid Lake	243,444	207,186	36,258
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	15,130	15,045	85
Undesignated Stream	2,359	1,848	511
Undesignated Lake	5,955	5,222	733
TOTAL	380,264	303,935	56,329
REGION 2			
Salmonid Stream	237,081	200,321	36,760
Salmonid Lake	88,183	76,366	11,817
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	3,871	3,701	170
Undesignated Lake	3,088	2,296	792
TOTAL	332,223	282,684	49,539
REGION 3			
Salmonid Stream	379,454	252,654	126,800
Salmonid Lake	192,252	141,137	51,115
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	5,858	2,713	3,145
Undesignated Lake	1,745	1,064	681
TOTAL	579,309	397,568	181,741
REGION 4			
Salmonid Stream	202,626	185,645	16,981
Salmonid Lake	229,872	218,303	11,569
Nonsalmonid Stream	14,050	13,143	907
Nonsalmonid Lake	14,568	14,483	85
Undesignated Stream	1,475	471	1,004
Undesignated Lake	10,186	9,336	850
TOTAL	472,777	441,381	31,396
REGION 5			
Salmonid Stream	155,598	133,692	21,906
Salmonid Lake	81,428	73,350	8,078
Nonsalmonid Stream	2,294	2,039	255
Nonsalmonid Lake	967	967	0
Undesignated Stream	1,671	1,225	446
Undesignated Lake	5,345	2,997	2,348
TOTAL	247,303	214,270	33,033

Table 21. Angling pressure in angler days by region by water type for the 1984 angling year (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 6			
Salmonid Stream	5,173	5,173	0
Salmonid Lake	38,448	37,768	680
Nonsalmonid Stream	31,855	31,634	221
Nonsalmonid Lake	39,474	38,964	510
Undesignated Stream	1,217	1,217	0
Undesignated Lake	3,876	3,621	255
TOTAL	120,043	118,377	1,666
REGION 7			
Salmonid Stream	1,123	953	170
Salmonid Lake	2,698	2,475	223
Nonsalmonid Stream	43,126	37,786	5,340
Nonsalmonid Lake	11,271	9,819	1,452
Undesignated Stream	85	0	85
Undesignated Lake	2,971	2,322	649
TOTAL	61,274	53,355	7,919
STATEWIDE			
Salmonid Stream	1,094,431	873,072	221,359
Salmonid Lake	876,325	756,585	119,740
Nonsalmonid Stream	91,325	84,602	6,723
Nonsalmonid Lake	81,410	79,278	2,132
Undesignated Stream	20,745	14,447	6,298
Undesignated Lake	33,166	26,858	6,308
TOTAL	2,197,402	1,834,842	362,560

In region 3 residents accounted for 68.6% of the regional pressure and nonresidents made up the remaining 31.4% of the pressure. Salmonid stream fishing was the largest for any region accounting for 34.7% of the statewide annual total. Within the region salmonid stream fishing dominated with 65.5% of the regional pressure (Chart 7).

In region 4 residents and nonresidents accounted for 93.4% and 6.6% of the regional pressure respectively. Like region 1, most of region 4's pressure came from salmonid lakes (48.6%) (Chart 8).

Within region 5 residents accounted for 86.6% and nonresidents 13.4% of the regional pressure. Salmonid streams provided the majority of the pressure (62.9%) (Chart 9).

In regions 6 and 7 residents provided 98.6% and 87.1% of the pressure respectively. Regions 6 and 7 provided the majority of the statewide nonsalmonid pressure. Region 6 maintained the states

largest pressure for nonsalmonid lakes (48.5%) (Chart 10) while region 7 maintained the states largest pressure for nonsalmonid streams (47.2%) (Chart 11).

August (wave 8) was the peak fishing period for both residents and nonresidents, while December (wave 12) was the least fished period (Table 22). Residents fished the least in December while the nonresidents fished the least in February (wave 2).

The majority of the nonresident pressure (74.4%) was exerted by the 2-day license holders. Since these anglers were sampled once at the end of the license year the pressure could not be classified into waves although it can logically be assigned to the summer season.

Table 22. Pressure in angler days by wave for 1984

WAVE	TOTAL	RESIDENT	NONRESIDENT
1	53,469	52,972	497
2	37,128	34,025	3,103
3	53,421	49,939	3,482
4	96,843	93,456	3,387
5	175,224	167,165	8,059
6	140,041	132,389	7,652
7	169,428	162,855	6,573
8	196,825	183,133	13,692
9	175,182	163,218	11,964
10	177,935	155,968	21,967
11	156,869	146,247	10,622
12	111,411	101,970	9,441
13	78,772	71,638	7,134
14	68,684	67,218	1,466
15	52,760	50,874	1,886
16	40,291	37,605	2,686
17	53,708	52,899	809
18	44,733	43,194	1,539
19	68,224	68,077	147
24	256,454		256,454

Angling pressure was summarized by the 22 major drainages within the state (Table 23). See discussion under 1982 for areas contained in each drainage.

Table 23. Angling pressure in angler days by drainage by water type for the 1984 angling year April '84 through February '85

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Beaverhead Drainage			
Salmonid Stream	31,760	22,457	9,303
Salmonid Lake	46,594	30,357	16,237
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	562	477	85
Undesignated Lake	0	0	0
TOTAL	78,916	53,291	25,625
Big Hole Drainage			
Salmonid Stream	65,032	46,735	18,297
Salmonid Lake	3,641	1,769	1,872
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	596	0	596
Undesignated Lake	471	471	0
TOTAL	69,740	48,975	20,765
Bitterroot Drainage			
Salmonid Stream	69,165	54,820	14,345
Salmonid Lake	13,190	12,146	1,044
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,390	1,305	85
Undesignated Lake	651	369	282
TOTAL	84,396	68,640	15,756
Blackfoot Drainage			
Salmonid Stream	44,035	38,431	5,604
Salmonid Lake	27,833	26,211	1,622
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,376	1,376	0
Undesignated Lake	586	501	85
TOTAL	73,830	66,519	7,311
Lower Clark Fork Drainage			
Salmonid Stream	75,944	64,628	11,316
Salmonid Lake	17,888	14,038	3,850
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	816	816	0
Undesignated Stream	757	757	0
Undesignated Lake	1,530	1,360	170
TOTAL	96,935	81,599	15,336

Table 23. Angling pressure in angler days by drainage by water type for the 1984 angling year April '84 through February '85 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Upper Clark Fork Drainage			
Salmonid Stream	73,997	63,781	10,216
Salmonid Lake	43,586	35,797	7,789
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	518	263	255
Undesignated Lake	1,590	1,080	510
TOTAL	119,691	100,921	18,770
Lower Flathead Drainage			
Salmonid Stream	48,992	40,457	8,535
Salmonid Lake	159,002	136,979	22,023
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	14,314	14,229	85
Undesignated Stream	170	0	170
Undesignated Lake	3,509	3,254	255
TOTAL	225,987	194,919	31,068
Upper Flathead Drainage			
Salmonid Stream	11,362	10,681	681
Salmonid Lake	10,381	9,419	962
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	341	0	341
Undesignated Lake	1,209	954	255
TOTAL	23,293	21,054	2,239
Gallatin Drainage			
Salmonid Stream	73,274	54,837	18,437
Salmonid Lake	11,347	10,034	1,313
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,745	1,575	170
Undesignated Lake	511	0	511
TOTAL	86,877	66,446	20,431
Jefferson Drainage			
Salmonid Stream	21,152	18,067	3,085
Salmonid Lake	8,900	8,021	879
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	762	0	762
Undesignated Lake	593	593	0
TOTAL	31,407	26,681	4,726

Table 23. Angling pressure in angler days by drainage by water type for the 1984 angling year April '84 through February '85 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Kootenai Drainage			
Salmonid Stream	26,962	22,157	4,805
Salmonid Lake	59,747	48,962	10,785
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,848	1,848	0
Undesignated Lake	138	0	138
TOTAL	88,695	72,967	15,728
Little Missouri Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	0	0	0
Nonsalmonid Stream	414	414	0
Nonsalmonid Lake	435	435	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	849	849	0
Madison Drainage			
Salmonid Stream	112,024	47,667	64,357
Salmonid Lake	52,753	25,956	26,797
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	693	523	170
Undesignated Lake	0	0	0
TOTAL	165,470	74,146	91,324
Marias Drainage			
Salmonid Stream	4,178	4,178	0
Salmonid Lake	30,811	25,796	5,015
Nonsalmonid Stream	2,730	2,730	0
Nonsalmonid Lake	11,210	11,125	85
Undesignated Stream	0	0	0
Undesignated Lake	646	476	170
TOTAL	49,575	44,305	5,270
Milk Drainage			
Salmonid Stream	3,283	3,283	0
Salmonid Lake	33,267	32,672	595
Nonsalmonid Stream	10,482	10,482	0
Nonsalmonid Lake	6,852	6,512	340
Undesignated Stream	435	435	0
Undesignated Lake	2,798	2,798	0
TOTAL	57,117	56,182	935

Table 23. Angling pressure in angler days by drainage by water type for the 1984 angling year April '84 through February '85 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Missouri Drainage			
Salmonid Stream	31,128	28,493	2,635
Salmonid Lake	17,668	17,158	510
Nonsalmonid Stream	21,543	21,152	391
Nonsalmonid Lake	33,313	33,143	170
Undesignated Stream	782	782	0
Undesignated Lake	4,198	3,603	595
TOTAL	108,632	104,331	4,301
Upper Missouri Drainage			
Salmonid Stream	174,512	161,173	13,339
Salmonid Lake	195,248	189,197	6,051
Nonsalmonid Stream	11,150	10,413	737
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,004	0	1,004
Undesignated Lake	5,611	5,526	85
TOTAL	387,525	366,309	21,216
Musselshell Drainage			
Salmonid Stream	13,295	12,870	425
Salmonid Lake	35,686	34,579	1,107
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	2,667	2,667	0
Undesignated Stream	593	593	0
Undesignated Lake	3,399	2,974	425
TOTAL	55,640	53,683	1,957
St Mary Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	4,804	2,422	2,382
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	4,804	2,422	2,382
Sun Drainage			
Salmonid Stream	10,696	8,582	2,114
Salmonid Lake	36,683	36,342	341
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	471	471	0
Undesignated Lake	257	257	0
TOTAL	48,107	45,652	2,455

Table 23. Angling pressure in angler days by drainage by water type for the 1984 angling year April '84 through February '85 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Yellowstone Drainage			
Salmonid Stream	1,123	953	170
Salmonid Lake	2,560	2,337	223
Nonsalmonid Stream	42,712	37,372	5,340
Nonsalmonid Lake	10,836	9,384	1,452
Undesignated Stream	85	0	85
Undesignated Lake	2,833	2,184	649
TOTAL	60,149	52,230	7,919
Upper Yellowstone Drainage			
Salmonid Stream	202,517	168,822	33,695
Salmonid Lake	64,736	56,393	8,343
Nonsalmonid Stream	2,294	2,039	255
Nonsalmonid Lake	967	967	0
Undesignated Stream	2,408	770	1,638
Undesignated Lake	2,636	458	2,178
TOTAL	275,558	229,449	46,109

Catch rate and harvest statistics were calculated in 1984 and 1985. The catch rate is based upon total fish caught (salmonids and nonsalmonids) divided by the total hours fished. The harvest is determined from the total fish (salmonid and nonsalmonid) kept per angler multiplied by the total number of angler days of pressure. In 1984, catch rates for the FWP regions ranged from 0.96 fish/hour to 1.64 fish/hour (Table 24). The average for the state was 1.34 fish/hour.

On a statewide basis nonsalmonid lakes had the highest catch rate of 2.03 fish/hour whereas nonsalmonid streams had the lowest catch rate of 0.59 fish/hour.

See the discussion portion of this report for a discourse on the reliability of the catch rate data.

Harvest for 1984 for each region ranged from 1,689,169 fish for region 4 to 247,734 fish taken for region 7 (Table 25). The overall harvest for the state was 6,578,000 fish. This averages 2.99 fish per angler day of pressure.

Salmonid lakes supported the largest harvest in 1984 with 3,217,409 fish taken. As expected, undesignated stream management had the smallest harvest of 29,522 fish.

Again as with catch rates see the discussion portion of this report on the reliability of harvest statistics.

Table 24. Catch rates (fish/hour) by region by water type for the 1984 angling year - March '84 through February '85 (Number of respondents in parenthesis)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	1.73 (441)	1.93 (298)	1.38 (143)
Salmonid Lake	1.30 (942)	1.46 (594)	1.04 (348)
Nonsalmonid Stream	0.00 (0)	0.00 (0)	0.00 (0)
Nonsalmonid Lake	3.55 (45)	3.59 (44)	3.00 (1)
Undesignated Stream	0.80 (10)	1.39 (4)	0.40 (6)
Undesignated Lake	1.89 (25)	2.12 (17)	1.42 (8)
TOTAL	1.50 (1,463)	1.71 (957)	1.14 (506)
REGION 2			
Salmonid Stream	1.42 (812)	1.58 (526)	1.11 (286)
Salmonid Lake	2.20 (325)	2.13 (220)	2.40 (105)
Nonsalmonid Stream	0.00 (0)	0.00 (0)	0.00 (0)
Nonsalmonid Lake	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Stream	0.93 (10)	1.09 (8)	0.25 (2)
Undesignated Lake	1.83 (13)	3.18 (6)	0.69 (7)
TOTAL	1.64 (1,160)	1.75 (760)	1.44 (400)
REGION 3			
Salmonid Stream	1.37 (1,975)	1.50 (706)	1.31 (1,269)
Salmonid Lake	1.20 (878)	1.53 (438)	0.86 (440)
Nonsalmonid Stream	0.00 (0)	0.00 (0)	0.00 (0)
Nonsalmonid Lake	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Stream	1.82 (44)	2.49 (12)	1.76 (32)
Undesignated Lake	0.68 (9)	1.75 (2)	0.37 (7)
TOTAL	1.32 (2,906)	1.52 (1,158)	1.20 (1,748)
REGION 4			
Salmonid Stream	1.27 (676)	1.31 (526)	1.16 (150)
Salmonid Lake	1.00 (743)	1.05 (663)	0.67 (80)
Nonsalmonid Stream	0.75 (47)	0.88 (36)	0.14 (11)
Nonsalmonid Lake	0.86 (49)	0.87 (48)	0.25 (1)
Undesignated Stream	1.38 (8)	6.00 (1)	0.73 (7)
Undesignated Lake	1.76 (44)	1.80 (34)	1.88 (10)
TOTAL	1.13 (1,567)	1.16 (1,308)	0.98 (259)

Table 24. Catch rates (fish/hour) by region by water type for the 1984 angling year - March '84 through February '85 (continued)

(Number of respondents in parenthesis)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 5			
Salmonid Stream	1.43 (621)	1.32 (405)	1.71 (216)
Salmonid Lake	0.83 (297)	0.70 (211)	1.14 (86)
Nonsalmonid Stream	0.55 (13)	0.38 (10)	1.03 (3)
Nonsalmonid Lake	1.00 (3)	1.00 (3)	0.00 (0)
Undesignated Stream	0.65 (6)	0.17 (3)	1.10 (3)
Undesignated Lake	1.81 (36)	1.63 (8)	1.93 (28)
TOTAL	1.25 (976)	1.10 (640)	1.57 (336)
REGION 6			
Salmonid Stream	1.38 (18)	1.38 (18)	0.00 (0)
Salmonid Lake	1.25 (122)	1.22 (114)	1.64 (8)
Nonsalmonid Stream	0.67 (120)	0.69 (116)	0.10 (4)
Nonsalmonid Lake	0.92 (138)	0.93 (132)	0.92 (6)
Undesignated Stream	0.22 (4)	0.22 (4)	0.00 (0)
Undesignated Lake	0.92 (14)	0.80 (11)	1.35 (3)
TOTAL	0.96 (416)	0.95 (395)	1.10 (21)
REGION 7			
Salmonid Stream	0.90 (4)	0.00 (2)	1.80 (2)
Salmonid Lake	1.13 (12)	0.65 (10)	3.50 (2)
Nonsalmonid Stream	0.51 (186)	0.66 (136)	0.23 (50)
Nonsalmonid Lake	4.52 (58)	5.11 (43)	2.45 (15)
Undesignated Stream	1.00 (1)	0.00 (0)	1.00 (1)
Undesignated Lake	1.74 (15)	2.16 (8)	1.49 (7)
TOTAL	1.45 (276)	1.67 (199)	0.91 (77)
STATEWIDE			
Salmonid Stream	1.41 (4,547)	1.50 (2,481)	1.32 (2,066)
Salmonid Lake	1.25 (3,319)	1.33 (2,250)	1.09 (1,069)
Nonsalmonid Stream	0.59 (366)	0.69 (298)	0.24 (68)
Nonsalmonid Lake	2.03 (293)	2.02 (270)	1.98 (23)
Undesignated Stream	1.24 (98)	1.47 (37)	1.20 (61)
Undesignated Lake	1.66 (156)	1.85 (86)	1.52 (70)
TOTAL	1.34 (8,779)	1.41 (5,422)	1.23 (3,357)

Table 25. Harvest (number of fish) by region by water type for the 1984 angling year - March '84 through February '85 (sample sizes same as for catch rates - Table 24)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	292,444	256,014	36,430
Salmonid Lake	980,740	831,318	149,422
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	161,586	161,075	511
Undesignated Stream	255	0	255
Undesignated Lake	17,637	15,234	2,403
TOTAL	1,452,652	1,263,641	189,021
REGION 2			
Salmonid Stream	568,615	524,020	44,595
Salmonid Lake	441,672	353,613	88,059
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	6,262	6,092	170
Undesignated Lake	7,519	5,318	2,201
TOTAL	1,024,068	889,043	135,025
REGION 3			
Salmonid Stream	760,146	590,901	169,245
Salmonid Lake	492,665	369,361	123,304
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	14,425	8,553	5,872
Undesignated Lake	3,250	2,126	1,124
TOTAL	1,270,486	970,941	299,545
REGION 4			
Salmonid Stream	565,938	532,517	33,421
Salmonid Lake	943,354	917,789	25,565
Nonsalmonid Stream	42,191	41,765	426
Nonsalmonid Lake	60,809	60,724	85
Undesignated Stream	2,433	0	2,433
Undesignated Lake	74,444	70,783	3,661
TOTAL	1,689,169	1,623,578	65,591

Table 25. Harvest (number of fish) by region by water type for the 1984 angling year - March '84 through February '85 (continued)
(sample sizes same as for catch rates - Table 24)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 5			
Salmonid Stream	299,138	260,106	39,032
Salmonid Lake	246,027	226,323	19,704
Nonsalmonid Stream	3,221	1,518	1,703
Nonsalmonid Lake	2,578	2,578	0
Undesignated Stream	1,970	593	1,377
Undesignated Lake	18,559	12,692	5,867
TOTAL	571,493	503,810	67,683
REGION 6			
Salmonid Stream	5,729	5,729	0
Salmonid Lake	105,974	104,356	1,618
Nonsalmonid Stream	41,479	41,368	111
Nonsalmonid Lake	159,093	157,305	1,788
Undesignated Stream	1,289	1,289	0
Undesignated Lake	6,106	4,659	1,447
TOTAL	319,670	314,706	4,964
REGION 7			
Salmonid Stream	0	0	0
Salmonid Lake	6,977	4,138	2,839
Nonsalmonid Stream	70,743	63,106	7,637
Nonsalmonid Lake	161,442	142,954	18,488
Undesignated Stream	170	0	170
Undesignated Lake	8,402	3,363	5,039
TOTAL	247,734	213,561	34,173
STATEWIDE			
Salmonid Stream	2,492,010	2,169,287	322,723
Salmonid Lake	3,217,409	2,806,898	410,511
Nonsalmonid Stream	157,634	147,757	9,877
Nonsalmonid Lake	545,508	524,636	20,872
Undesignated Stream	29,522	17,840	11,682
Undesignated Lake	135,917	114,175	21,742
TOTAL	6,578,000	5,780,593	797,407

The "summer" season for angling in Montana is considered as that period of the year between the first of May through the end of September. In 1984, 1,619,882 days (73.7%) of the angling pressure occurred during this period (Table 26). Percentages of angling pressure within the regions for the summer period were very similar to the entire year with region 3 having the greatest difference (0.8%). Regions 1 through 5 have 70%-77% of their annual pressure occurring during the "summer" season. Regions 6 and 7 have 64% and 86% of their pressure during the "summer" season respectively.

Table 26. Angling pressure in angler days by region by water type for the "summer" season of May '84 through September '84

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	91,966	73,224	18,742
Salmonid Lake	167,666	133,934	33,732
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	8,403	8,318	85
Undesignated Stream	2,359	1,848	511
Undesignated Lake	3,433	2,700	733
TOTAL	273,827	220,024	53,803
REGION 2			
Salmonid Stream	169,613	138,639	30,974
Salmonid Lake	68,821	57,286	11,535
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	3,132	2,962	170
Undesignated Lake	2,042	1,532	510
TOTAL	243,608	200,419	43,189
REGION 3			
Salmonid Stream	304,473	182,509	121,964
Salmonid Lake	137,128	88,714	48,414
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	4,858	1,713	3,145
Undesignated Lake	1,152	471	681
TOTAL	447,611	273,407	174,204
REGION 4			
Salmonid Stream	143,658	127,278	16,380
Salmonid Lake	174,428	162,859	11,569
Nonsalmonid Stream	9,996	9,089	907
Nonsalmonid Lake	8,201	8,116	85
Undesignated Stream	897	471	426
Undesignated Lake	6,992	6,142	850
TOTAL	344,172	313,955	30,217

Table 26. Angling pressure in angler days by region by water type for the "summer" season of May '84 through September '84

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 5			
Salmonid Stream	110,699	89,709	20,990
Salmonid Lake	58,386	50,629	7,757
Nonsalmonid Stream	1,817	1,562	255
Nonsalmonid Lake	967	967	0
Undesignated Stream	815	369	446
Undesignated Lake	4,822	2,474	2,348
TOTAL	177,506	145,710	31,796
REGION 6			
Salmonid Stream	4,706	4,706	0
Salmonid Lake	25,543	24,863	680
Nonsalmonid Stream	18,405	18,184	221
Nonsalmonid Lake	24,145	23,635	510
Undesignated Stream	1,217	1,217	0
Undesignated Lake	2,511	2,256	255
TOTAL	76,527	74,861	1,666
REGION 7			
Salmonid Stream	170	0	170
Salmonid Lake	1,097	874	223
Nonsalmonid Stream	37,078	33,025	4,053
Nonsalmonid Lake	11,271	9,819	1,452
Undesignated Stream	85	0	85
Undesignated Lake	2,721	2,072	649
TOTAL	52,422	45,790	6,632
STATEWIDE			
Salmonid Stream	825,285	616,065	209,220
Salmonid Lake	633,069	519,159	113,910
Nonsalmonid Stream	67,296	61,860	5,436
Nonsalmonid Lake	52,987	50,855	2,132
Undesignated Stream	17,572	11,852	5,720
Undesignated Lake	23,673	17,647	6,026
TOTAL	1,619,882	1,277,438	342,444

"Summer" angling pressure by drainage (Table 27) ranged from 268,759 angler days for the upper Missouri drainage to 849 angler days for the Little Missouri River drainage.

Table 27. Angling pressure in angler days by drainage by water type for the 1984 "summer" angling season of May '84 through September '84

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Beaverhead Drainage			
Salmonid Stream	19,365	10,813	8,552
Salmonid Lake	33,004	18,886	14,118
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	85	0	85
Undesignated Lake	0	0	0
TOTAL	52,454	29,699	22,755
Big Hole Drainage			
Salmonid Stream	59,055	40,758	18,297
Salmonid Lake	3,641	1,769	1,872
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	596	0	596
Undesignated Lake	471	471	0
TOTAL	63,763	42,998	20,765
Bitterroot Drainage			
Salmonid Stream	46,655	34,278	12,377
Salmonid Lake	11,843	11,081	762
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,390	1,305	85
Undesignated Lake	369	369	0
TOTAL	60,257	47,033	13,224
Blackfoot Drainage			
Salmonid Stream	37,592	32,855	4,737
Salmonid Lake	20,438	18,816	1,622
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	900	900	0
Undesignated Lake	85	0	85
TOTAL	59,015	52,571	6,444
Lower Clark Fork Drainage			
Salmonid Stream	45,107	35,796	9,311
Salmonid Lake	15,497	11,794	3,703
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	816	816	0
Undesignated Stream	757	757	0
Undesignated Lake	516	346	170
TOTAL	62,693	49,509	13,184

Table 27. Angling pressure in angler days by drainage by water type for the 1984 "summer" angling season of May '84 through September '84 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Upper Clark Fork Drainage			
Salmonid Stream	57,936	48,666	9,270
Salmonid Lake	33,433	26,644	7,789
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	255	0	255
Undesignated Lake	1,327	817	510
TOTAL	92,951	75,127	17,824
Lower Flathead Drainage			
Salmonid Stream	41,437	32,902	8,535
Salmonid Lake	104,575	84,342	20,233
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	7,587	7,502	85
Undesignated Stream	170	0	170
Undesignated Lake	2,264	2,009	255
TOTAL	156,033	126,755	29,278
Upper Flathead Drainage			
Salmonid Stream	11,151	10,470	681
Salmonid Lake	7,476	6,514	962
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	341	0	341
Undesignated Lake	946	691	255
TOTAL	19,914	17,675	2,239
Gallatin Drainage			
Salmonid Stream	58,685	40,248	18,437
Salmonid Lake	9,237	7,924	1,313
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,745	1,575	170
Undesignated Lake	511	0	511
TOTAL	70,178	49,747	20,431
Jefferson Drainage			
Salmonid Stream	16,859	13,774	3,085
Salmonid Lake	3,277	2,398	879
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	762	0	762
Undesignated Lake	0	0	0
TOTAL	20,898	16,172	4,726

Table 27. Angling pressure in angler days by drainage by water type for the 1984 "summer" angling season of May '84 through September '84 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Kootenai Drainage			
Salmonid Stream	21,701	16,896	4,805
Salmonid Lake	43,225	33,029	10,196
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,848	1,848	0
Undesignated Lake	138	0	138
TOTAL	66,912	51,773	15,139
Little Missouri Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	0	0	0
Nonsalmonid Stream	414	414	0
Nonsalmonid Lake	435	435	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	849	849	0
Madison Drainage			
Salmonid Stream	91,602	29,925	61,677
Salmonid Lake	45,833	19,618	26,215
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	170	0	170
Undesignated Lake	0	0	0
TOTAL	137,605	49,543	88,062
Marias Drainage			
Salmonid Stream	3,655	3,655	0
Salmonid Lake	24,439	19,424	5,015
Nonsalmonid Stream	2,249	2,249	0
Nonsalmonid Lake	4,843	4,758	85
Undesignated Stream	0	0	0
Undesignated Lake	170	0	170
TOTAL	35,356	30,086	5,270
Milk Drainage			
Salmonid Stream	2,816	2,816	0
Salmonid Lake	22,957	22,362	595
Nonsalmonid Stream	6,693	6,693	0
Nonsalmonid Lake	3,790	3,450	340
Undesignated Stream	435	435	0
Undesignated Lake	1,683	1,683	0
TOTAL	38,374	37,439	935

Table 27. Angling pressure in angler days by drainage by water type for the 1984 "summer" angling season of May '84 through September '84 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Missouri Drainage			
Salmonid Stream	24,685	22,190	2,495
Salmonid Lake	12,842	12,332	510
Nonsalmonid Stream	11,882	11,491	391
Nonsalmonid Lake	21,046	20,876	170
Undesignated Stream	782	782	0
Undesignated Lake	3,948	3,353	595
TOTAL	75,185	71,024	4,161
Upper Missouri Drainage			
Salmonid Stream	125,068	112,190	12,878
Salmonid Lake	132,538	126,487	6,051
Nonsalmonid Stream	7,577	6,840	737
Nonsalmonid Lake	0	0	0
Undesignated Stream	426	0	426
Undesignated Lake	3,150	3,065	85
TOTAL	268,759	248,582	20,177
Musselshell Drainage			
Salmonid Stream	12,772	12,347	425
Salmonid Lake	29,851	28,744	1,107
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	2,667	2,667	0
Undesignated Stream	0	0	0
Undesignated Lake	2,876	2,451	425
TOTAL	48,166	46,209	1,957
St Mary Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	4,040	1,658	2,382
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	4,040	1,658	2,382
Sun Drainage			
Salmonid Stream	7,190	5,076	2,114
Salmonid Lake	29,398	29,057	341
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	471	471	0
Undesignated Lake	0	0	0
TOTAL	37,059	34,604	2,455

Table 27. Angling pressure in angler days by drainage by water type for the 1984 "summer" angling season of May '84 through September '84 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Yellowstone Drainage			
Salmonid Stream	170	0	170
Salmonid Lake	959	736	223
Nonsalmonid Stream	36,664	32,611	4,053
Nonsalmonid Lake	10,836	9,384	1,452
Undesignated Stream	85	0	85
Undesignated Lake	2,583	1,934	649
TOTAL	51,297	44,665	6,632
Upper Yellowstone Drainage			
Salmonid Stream	141,784	110,410	31,374
Salmonid Lake	44,566	36,544	8,022
Nonsalmonid Stream	1,817	1,562	255
Nonsalmonid Lake	967	967	0
Undesignated Stream	2,145	507	1,638
Undesignated Lake	2,636	458	2,178
TOTAL	193,915	150,448	43,467

Catch rates during the "summer" season varied from 1.55 fish/hour for region 7 to 0.84 fish/hour for region 6 (Table 28). The statewide average was 1.28 fish/hour with residents faring better than nonresidents, 1.33 fish/hour versus 1.24 fish/hour respectively. The "summer" catch rates were similar to the annual catch rates with region 1 having the greatest difference (0.33 fish/hour).

Nonsalmonid lakes had the highest catch rate of any water type with 1.93 fish/hour. Nonsalmonid streams had the lowest catch rate with 0.59 fish/hour.

The harvest of fish for the "summer" season varied from a high of 1,371,313 fish from region 4 to a low of 179,759 fish from region 6 (Table 29). Overall 4,482,785 fish were harvested during the "summer" season. This amounted to 68.1% of the annual harvest.

Table 28. Catch rates (fish/hour) by region by water type for the 1984 "summer" season of May '84 through Sept. '84
(Number of respondents in parenthesis)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	1.29 (375)	1.23 (232)	1.38 (143)
Salmonid Lake	1.10 (724)	1.17 (391)	1.02 (333)
Nonsalmonid Stream	0.00 (0)	0.00 (0)	0.00 (0)
Nonsalmonid Lake	1.04 (23)	1.01 (22)	3.00 (1)
Undesignated Stream	0.80 (10)	1.39 (4)	0.40 (6)
Undesignated Lake	1.93 (16)	2.29 (8)	1.42 (8)
TOTAL	1.17 (1,148)	1.20 (657)	1.13 (491)
REGION 2			
Salmonid Stream	1.28 (671)	1.37 (380)	1.12 (267)
Salmonid Lake	1.95 (259)	1.69 (155)	2.42 (104)
Nonsalmonid Stream	0.00 (0)	0.00 (0)	0.00 (0)
Nonsalmonid Lake	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Stream	1.03 (9)	1.25 (7)	0.25 (2)
Undesignated Lake	1.13 (9)	2.32 (3)	0.56 (6)
TOTAL	1.46 (924)	1.46 (545)	1.47 (379)
REGION 3			
Salmonid Stream	1.36 (1,772)	1.45 (526)	1.32 (1,246)
Salmonid Lake	1.15 (743)	1.52 (312)	0.86 (431)
Nonsalmonid Stream	0.00 (0)	0.00 (0)	0.00 (0)
Nonsalmonid Lake	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Stream	1.82 (42)	2.47 (10)	1.76 (32)
Undesignated Lake	0.70 (8)	3.00 (1)	0.37 (7)
TOTAL	1.30 (2,565)	1.49 (849)	1.21 (1,716)
REGION 4			
Salmonid Stream	1.40 (519)	1.53 (372)	1.17 (147)
Salmonid Lake	1.06 (592)	1.14 (512)	0.67 (80)
Nonsalmonid Stream	0.75 (39)	0.89 (28)	0.14 (11)
Nonsalmonid Lake	1.32 (26)	1.36 (25)	0.25 (1)
Undesignated Stream	1.51 (6)	6.00 (1)	0.62 (5)
Undesignated Lake	1.95 (37)	2.07 (27)	1.88 (10)
TOTAL	1.23 (1,219)	1.32 (965)	0.98 (254)

Table 28. Catch rates (fish/hour) by region by water type for the 1984 "summer" season of May '84 through Sept. '84 (continued)

(Number of respondents in parenthesis)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 5			
Salmonid Stream	1.53 (503)	1.46 (291)	1.73 (212)
Salmonid Lake	0.92 (240)	0.78 (155)	1.16 (85)
Nonsalmonid Stream	0.60 (12)	0.42 (9)	1.03 (3)
Nonsalmonid Lake	1.00 (3)	1.00 (3)	0.00 (0)
Undesignated Stream	0.85 (4)	0.00 (1)	1.10 (3)
Undesignated Lake	1.84 (35)	1.78 (7)	1.93 (28)
TOTAL	1.34 (797)	1.21 (466)	1.59 (331)
REGION 6			
Salmonid Stream	1.46 (17)	1.46 (17)	0.00 (0)
Salmonid Lake	0.93 (89)	0.86 (81)	1.64 (8)
Nonsalmonid Stream	0.67 (88)	0.70 (84)	0.10 (4)
Nonsalmonid Lake	0.80 (98)	0.80 (92)	0.92 (6)
Undesignated Stream	0.22 (4)	0.22 (4)	0.00 (0)
Undesignated Lake	1.08 (11)	0.98 (8)	1.35 (3)
TOTAL	0.84 (307)	0.82 (286)	1.10 (21)
REGION 7			
Salmonid Stream	1.80 (2)	0.00 (0)	1.80 (2)
Salmonid Lake	1.78 (7)	1.09 (5)	3.50 (2)
Nonsalmonid Stream	0.51 (169)	0.68 (123)	0.24 (46)
Nonsalmonid Lake	4.52 (58)	5.11 (43)	2.45 (15)
Undesignated Stream	1.00 (1)	0.00 (0)	1.00 (1)
Undesignated Lake	1.65 (14)	1.90 (7)	1.49 (7)
TOTAL	1.55 (251)	1.81 (178)	0.96 (73)
STATEWIDE			
Salmonid Stream	1.37 (3,835)	1.42 (1,818)	1.33 (2,017)
Salmonid Lake	1.17 (2,654)	1.23 (1,611)	1.09 (1,043)
Nonsalmonid Stream	0.59 (308)	0.70 (244)	0.25 (64)
Nonsalmonid Lake	1.93 (208)	1.91 (185)	1.98 (23)
Undesignated Stream	1.27 (91)	1.53 (32)	1.21 (59)
Undesignated Lake	1.68 (130)	1.93 (61)	1.52 (69)
TOTAL	1.28 (7,226)	1.33 (3,951)	1.24 (3,275)

Table 29. Harvest (number of fish) by region by water type for the "summer" season - May '84 through September '84 (sample sizes same as for catch rates - Table 28)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	211,365	174,935	36,430
Salmonid Lake	550,847	419,492	131,355
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	47,798	47,287	511
Undesignated Stream	255	0	255
Undesignated Lake	11,982	9,579	2,403
TOTAL	822,247	651,293	170,954
REGION 2			
Salmonid Stream	310,561	278,279	32,282
Salmonid Lake	239,393	151,897	87,496
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	6,262	6,092	170
Undesignated Lake	5,078	4,567	511
TOTAL	561,294	440,835	120,459
REGION 3			
Salmonid Stream	565,382	397,930	167,452
Salmonid Lake	327,950	210,653	117,297
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	12,333	6,461	5,872
Undesignated Lake	2,065	941	1,124
TOTAL	907,730	615,985	291,745
REGION 4			
Salmonid Stream	443,745	410,324	33,421
Salmonid Lake	765,945	740,380	25,565
Nonsalmonid Stream	36,785	36,359	426
Nonsalmonid Lake	51,920	51,835	85
Undesignated Stream	1,277	0	1,277
Undesignated Lake	71,641	67,980	3,661
TOTAL	1,371,313	1,306,878	64,435
REGION 5			
Salmonid Stream	222,081	183,741	38,340
Salmonid Lake	150,260	130,556	19,704
Nonsalmonid Stream	3,221	1,518	1,703
Nonsalmonid Lake	2,578	2,578	0
Undesignated Stream	1,377	0	1,377
Undesignated Lake	18,036	12,169	5,867
TOTAL	397,553	330,562	66,991

Table 29. Harvest (number of fish) by region by water type for the 1984 angling year - March '84 through February '85 (continued)
(sample sizes same as for catch rates - Table 28)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 6			
Salmonid Stream	5,729	5,729	0
Salmonid Lake	56,603	54,985	1,618
Nonsalmonid Stream	20,701	20,590	111
Nonsalmonid Lake	89,331	87,543	1,788
Undesignated Stream	1,289	1,289	0
Undesignated Lake	6,106	4,659	1,447
TOTAL	179,759	174,795	4,964
REGION 7			
Salmonid Stream	0	0	0
Salmonid Lake	5,968	3,129	2,839
Nonsalmonid Stream	64,189	57,195	6,994
Nonsalmonid Lake	161,442	142,954	18,488
Undesignated Stream	170	0	170
Undesignated Lake	8,402	3,363	5,039
TOTAL	240,171	206,641	33,530
STATEWIDE			
Salmonid Stream	1,758,863	1,450,938	307,925
Salmonid Lake	2,096,966	1,711,092	385,874
Nonsalmonid Stream	124,896	115,662	9,234
Nonsalmonid Lake	353,069	332,197	20,872
Undesignated Stream	25,681	15,155	10,526
Undesignated Lake	123,310	103,258	20,052
TOTAL	4,482,785	3,728,302	754,483

Residents accounted for 83.2% (3,728,302 fish) of the harvest during this period. Salmonid lakes had the highest harvest rate of any water type with 2,096,966 fish, while undesignated streams had the lowest harvest of 25,681 fish.

The "winter" season for angling is from March-April of 1984, October-December 1984 and January-February, 1985. This comprises a period of October through April for comparison purposes with other years. In 1984, 577,441 angler days (26.3%) of the annual fishing pressure occurred during this period (Table 30). The pressure from region to region ranged from a high of 131,694 angler days for Region 3 to a low of 8,852 angler days for Region 7. Salmonid streams had the most "winter" pressure with 269,141 angler days, while undesignated stream management had the least with 3,172 angler days.

Table 30. Angling pressure in angler days by region by water type for the "winter" season of March '84 through April '84, October '84 through February '85

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	21,407	21,407	0
Salmonid Lake	75,778	73,252	2,526
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	6,727	6,727	0
Undesignated Stream	0	0	0
Undesignated Lake	2,521	2,521	0
TOTAL	106,433	103,907	2,526
REGION 2			
Salmonid Stream	67,467	61,681	5,786
Salmonid Lake	19,360	19,078	282
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	739	739	0
Undesignated Lake	1,046	764	282
TOTAL	88,612	82,262	6,350
REGION 3			
Salmonid Stream	74,979	70,143	4,836
Salmonid Lake	55,123	52,421	2,702
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	999	999	0
Undesignated Lake	593	593	0
TOTAL	131,694	124,156	7,538
REGION 4			
Salmonid Stream	58,968	58,366	602
Salmonid Lake	55,444	55,444	0
Nonsalmonid Stream	4,054	4,054	0
Nonsalmonid Lake	6,367	6,367	0
Undesignated Stream	578	0	578
Undesignated Lake	3,195	3,195	0
TOTAL	128,606	127,426	1,180
REGION 5			
Salmonid Stream	44,900	43,984	916
Salmonid Lake	22,971	22,971	0
Nonsalmonid Stream	476	476	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	856	856	0
Undesignated Lake	523	523	0
TOTAL	69,726	68,810	916

Table 30. Angling pressure in angler days by region by water type for the "winter" season of March '84 through April '84, October '84 through February '85 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 6			
Salmonid Stream	467	467	0
Salmonid Lake	12,905	12,905	0
Nonsalmonid Stream	13,451	13,451	0
Nonsalmonid Lake	15,329	15,329	0
Undesignated Stream	0	0	0
Undesignated Lake	1,366	1,366	0
TOTAL	43,518	43,518	0
REGION 7			
Salmonid Stream	953	953	0
Salmonid Lake	1,601	1,601	0
Nonsalmonid Stream	6,048	6,048	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	250	250	0
TOTAL	8,852	8,852	0
STATEWIDE			
Salmonid Stream	269,141	257,001	12,140
Salmonid Lake	243,182	237,672	5,510
Nonsalmonid Stream	24,029	22,742	1,287
Nonsalmonid Lake	28,423	28,423	0
Undesignated Stream	3,172	2,594	578
Undesignated Lake	9,494	9,212	282
TOTAL	577,441	557,644	19,797

Winter angling pressure (Table 31) by drainage ranged from 118,768 angler days for the Upper Missouri River drainage to zero (0) angler days for the Little Missouri River drainage in Eastern Montana.

Table 31. Angling pressure in angler days by drainage by water type for the 1984 "winter" angling season of March '84 through April '84, October '84 through February '85

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Beaverhead Drainage			
Salmonid Stream	12,395	11,644	751
Salmonid Lake	13,589	11,469	2,120
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	476	476	0
Undesignated Lake	0	0	0
TOTAL	26,460	23,589	2,871
Big Hole Drainage			
Salmonid Stream	5,977	5,977	0
Salmonid Lake	0	0	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	5,977	5,977	0
Bitterroot Drainage			
Salmonid Stream	22,509	20,541	1,968
Salmonid Lake	1,348	1,066	282
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	282	0	282
TOTAL	24,139	21,607	2,532
Blackfoot Drainage			
Salmonid Stream	6,443	5,576	867
Salmonid Lake	7,393	7,393	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	476	476	0
Undesignated Lake	501	501	0
TOTAL	14,813	13,946	867
Lower Clark Fork Drainage			
Salmonid Stream	30,837	28,832	2,005
Salmonid Lake	2,391	2,244	147
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	1,014	1,014	0
TOTAL	34,242	32,090	2,152

Table 31. Angling pressure in angler days by drainage by water type for the 1984 "winter" angling season of March '84 through April '84, October '84 through February '85 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Upper Clark Fork Drainage			
Salmonid Stream	16,061	15,115	946
Salmonid Lake	10,152	10,152	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	263	263	0
Undesignated Lake	263	263	0
TOTAL	26,739	25,793	946
Lower Flathead Drainage			
Salmonid Stream	7,552	7,552	0
Salmonid Lake	54,427	52,637	1,790
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	6,727	6,727	0
Undesignated Stream	0	0	0
Undesignated Lake	1,244	1,244	0
TOTAL	69,950	68,160	1,790
Upper Flathead Drainage			
Salmonid Stream	211	211	0
Salmonid Lake	2,905	2,905	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	263	263	0
TOTAL	3,379	3,379	0
Gallatin Drainage			
Salmonid Stream	14,588	14,588	0
Salmonid Lake	2,110	2,110	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	16,698	16,698	0
Jefferson Drainage			
Salmonid Stream	4,293	4,293	0
Salmonid Lake	5,623	5,623	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	593	593	0
TOTAL	10,509	10,509	0

Table 31. Angling pressure in angler days by drainage by water type for the 1984 "winter" angling season of March '84 through April '84, October '84 through February '85 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Kootenai Drainage			
Salmonid Stream	5,261	5,261	0
Salmonid Lake	16,522	15,933	589
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	21,783	21,194	589
Little Missouri Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	0	0	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	0	0	0
Madison Drainage			
Salmonid Stream	20,421	17,741	2,680
Salmonid Lake	6,919	6,337	582
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	523	523	0
Undesignated Lake	0	0	0
TOTAL	27,863	24,601	3,262
Marias Drainage			
Salmonid Stream	523	523	0
Salmonid Lake	6,372	6,372	0
Nonsalmonid Stream	481	481	0
Nonsalmonid Lake	6,367	6,367	0
Undesignated Stream	0	0	0
Undesignated Lake	476	476	0
TOTAL	14,219	14,219	0
Milk Drainage			
Salmonid Stream	467	467	0
Salmonid Lake	10,310	10,310	0
Nonsalmonid Stream	3,789	3,789	0
Nonsalmonid Lake	3,061	3,061	0
Undesignated Stream	0	0	0
Undesignated Lake	1,116	1,116	0
TOTAL	18,743	18,743	0

Table 31. Angling pressure in angler days by drainage by water type for the 1984 "winter" angling season of March '84 through April '84, October '84 through February '85 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Missouri Drainage			
Salmonid Stream	6,444	6,304	140
Salmonid Lake	4,826	4,826	0
Nonsalmonid Stream	9,662	9,662	0
Nonsalmonid Lake	12,268	12,268	0
Undesignated Stream	0	0	0
Undesignated Lake	250	250	0
TOTAL	33,450	33,310	140
Upper Missouri Drainage			
Salmonid Stream	49,443	48,981	462
Salmonid Lake	62,712	62,712	0
Nonsalmonid Stream	3,573	3,573	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	578	0	578
Undesignated Lake	2,462	2,462	0
TOTAL	118,768	117,728	1,040
Musselshell Drainage			
Salmonid Stream	523	523	0
Salmonid Lake	5,834	5,834	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	593	593	0
Undesignated Lake	523	523	0
TOTAL	7,473	7,473	0
St Mary Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	764	764	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	764	764	0
Sun Drainage			
Salmonid Stream	3,506	3,506	0
Salmonid Lake	7,285	7,285	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	257	257	0
TOTAL	11,408	11,408	0

Table 31. Angling pressure in angler days by drainage by water type for the 1984 "winter" angling season of March '84 through April '84, October '84 through February '85 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Yellowstone Drainage			
Salmonid Stream	953	953	0
Salmonid Lake	1,601	1,601	0
Nonsalmonid Stream	6,048	4,761	1,287
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	250	250	0
TOTAL	8,852	7,565	1,287
Upper Yellowstone Drainage			
Salmonid Stream	60,734	58,413	2,321
Salmonid Lake	20,099	20,099	0
Nonsalmonid Stream	476	476	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	263	263	0
Undesignated Lake	0	0	0
TOTAL	81,572	79,251	2,321

Catch rates for the 1984 "winter" season varied from a high of 2.80 fish/hour for Region 1 to a low of 0.47 fish/hour for Region 7 (Table 32). Nonsalmonid lakes led the statewide catch rates with 2.18 fish/hour while nonsalmonid streams had the smallest catch rates of 0.54 fish/hour. The overall statewide catch rate was 1.65 fish/hour with residents faring better than nonresidents (1.69 vs. 1.13 respectively).

Harvest was the largest in Region 1 for 1984 "winter" season with 630,414 fish (Table 33). Region 7 had the smallest harvest with 7,563 fish. Overall the statewide harvest was 2,095,215 fish during this "winter" period with 98.0 % (2,052,293 fish) of this harvest by residents. Salmonid streams had the largest harvest statewide with 269,141 fish while undesignated streams had the smallest harvest of 3,172 fish.

Table 32. Catch rates (fish/hour) by region by water type for the 1984 "winter" season of March '84 through April '84, October '84 through February '85
(Number of respondents in parenthesis)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	4.73 (66)	4.73 (66)	0.00 (0)
Salmonid Lake	1.96 (218)	1.99 (203)	2.04 (15)
Nonsalmonid Stream	0.00 (0)	0.00 (0)	0.00 (0)
Nonsalmonid Lake	5.87 (22)	5.87 (22)	0.00 (0)
Undesignated Stream	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Lake	1.58 (9)	1.58 (9)	0.00 (0)
TOTAL	2.80 (315)	2.86 (300)	2.04 (15)
REGION 2			
Salmonid Stream	2.13 (165)	2.26 (146)	0.83 (19)
Salmonid Lake	2.87 (66)	2.90 (65)	0.67 (1)
Nonsalmonid Stream	0.00 (0)	0.00 (0)	0.00 (0)
Nonsalmonid Lake	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Stream	0.00 (1)	0.00 (1)	0.00 (0)
Undesignated Lake	3.41 (4)	4.04 (3)	1.50 (1)
TOTAL	2.35 (236)	2.47 (215)	0.85 (21)
REGION 3			
Salmonid Stream	1.66 (203)	1.81 (180)	1.25 (23)
Salmonid Lake	1.53 (135)	1.58 (126)	0.85 (9)
Nonsalmonid Stream	0.00 (0)	0.00 (0)	0.00 (0)
Nonsalmonid Lake	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Stream	2.63 (2)	2.63 (2)	0.00 (0)
Undesignated Lake	0.50 (1)	0.50 (1)	0.00 (0)
TOTAL	1.62 (341)	1.72 (309)	1.13 (32)
REGION 4			
Salmonid Stream	0.84 (157)	0.84 (154)	1.09 (3)
Salmonid Lake	0.80 (151)	0.80 (151)	0.00 (0)
Nonsalmonid Stream	0.44 (8)	0.44 (8)	0.00 (0)
Nonsalmonid Lake	0.36 (23)	0.36 (23)	0.00 (0)
Undesignated Stream	1.00 (2)	0.00 (0)	1.00 (2)
Undesignated Lake	0.86 (7)	0.86 (7)	0.00 (0)
TOTAL	0.78 (348)	0.78 (343)	1.05 (5)

Table 32. Catch rates (fish/hour) by region by water type for the 1984 "winter" season of March '84 through April '84, October '84 through February '85 (continued)
(Number of respondents in parenthesis)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 5			
Salmonid Stream	0.98 (118)	1.01 (114)	0.45 (4)
Salmonid Lake	0.44 (58)	0.45 (57)	0.00 (1)
Nonsalmonid Stream	0.00 (1)	0.00 (1)	0.00 (0)
Nonsalmonid Lake	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Stream	0.25 (2)	0.25 (2)	0.00 (0)
Undesignated Lake	0.33 (1)	0.33 (1)	0.00 (0)
TOTAL	0.79 (180)	0.81 (175)	0.36 (5)
REGION 6			
Salmonid Stream	0.00 (1)	0.00 (1)	0.00 (0)
Salmonid Lake	2.27 (33)	2.27 (33)	0.00 (0)
Nonsalmonid Stream	0.64 (32)	0.64 (32)	0.00 (0)
Nonsalmonid Lake	1.20 (40)	1.20 (40)	0.00 (0)
Undesignated Stream	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Lake	0.33 (3)	0.33 (3)	0.00 (0)
TOTAL	1.33 (109)	1.33 (109)	0.00 (0)
REGION 7			
Salmonid Stream	0.00 (2)	0.00 (2)	0.00 (0)
Salmonid Lake	0.15 (5)	0.15 (5)	0.00 (0)
Nonsalmonid Stream	0.41 (17)	0.54 (13)	0.13 (4)
Nonsalmonid Lake	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Stream	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Lake	4.00 (1)	4.00 (1)	0.00 (0)
TOTAL	0.47 (25)	0.56 (21)	0.13 (4)
STATEWIDE			
Salmonid Stream	1.75 (712)	1.83 (663)	1.01 (49)
Salmonid Lake	1.57 (666)	1.58 (640)	1.49 (26)
Nonsalmonid Stream	0.54 (58)	0.58 (54)	0.13 (4)
Nonsalmonid Lake	2.18 (85)	2.18 (85)	0.00 (0)
Undesignated Stream	1.11 (7)	1.15 (5)	1.00 (2)
Undesignated Lake	1.53 (26)	1.53 (25)	1.50 (1)
TOTAL	1.65 (1,554)	1.69 (1,472)	1.13 (82)

Table 33. Harvest (number of fish) by region by water type for the "winter" season - March '84 through April '84, October '84 through February '85
(sample sizes same as for catch rates - Table 32)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	81,078	81,078	0
Salmonid Lake	429,892	411,826	18,066
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	113,789	113,789	0
Undesignated Stream	0	0	0
Undesignated Lake	5,655	5,655	0
TOTAL	630,414	612,348	18,066
REGION 2			
Salmonid Stream	258,057	245,745	12,312
Salmonid Lake	202,278	201,715	563
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	2,441	751	1,690
TOTAL	462,776	448,211	14,565
REGION 3			
Salmonid Stream	194,763	192,971	1,792
Salmonid Lake	164,714	158,706	6,008
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,092	2,092	0
Undesignated Lake	1,185	1,185	0
TOTAL	362,754	354,954	7,800
REGION 4			
Salmonid Stream	122,194	122,194	0
Salmonid Lake	177,405	177,405	0
Nonsalmonid Stream	5,407	5,407	0
Nonsalmonid Lake	8,890	8,890	0
Undesignated Stream	1,156	0	1,156
Undesignated Lake	2,803	2,803	0
TOTAL	317,855	316,699	1,156

Table 33. Harvest (number of fish) by region by water type for the "winter" season - March '84 through April '84, October '84 through February '85 (continued)
(sample sizes same as for catch rates - Table 32)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 5			
Salmonid Stream	77,057	76,365	692
Salmonid Lake	95,767	95,767	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	593	593	0
Undesignated Lake	523	523	0
TOTAL	173,940	173,248	692
REGION 6			
Salmonid Stream	0	0	0
Salmonid Lake	49,371	49,371	0
Nonsalmonid Stream	20,778	20,778	0
Nonsalmonid Lake	69,764	69,764	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	139,913	139,913	0
REGION 7			
Salmonid Stream	0	0	0
Salmonid Lake	1,008	1,008	0
Nonsalmonid Stream	6,555	5,912	643
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	250	250	0
TOTAL	7,563	6,920	643
STATEWIDE			
Salmonid Stream	733,149	718,353	14,796
Salmonid Lake	1,120,435	1,095,798	24,637
Nonsalmonid Stream	32,740	32,097	643
Nonsalmonid Lake	192,443	192,443	0
Undesignated Stream	3,841	2,685	1,156
Undesignated Lake	12,607	10,917	1,690
TOTAL	2,095,215	2,052,293	42,922

1985

Licensed anglers fishing on Montana waters exerted 2,443,438 angler days of pressure for the 1985 license year. Residents accounted for 1,916,711 man days (78.4%) and nonresidents made up the remaining 526,727 angler days (21.6%). Individual water estimates sorted alphabetically and by pressure are given appendixes 1985A and 1985B.

The pressure distributed between Fish, Wildlife and Parks regions (Figure 1) emphasizes the cold water fishery (Chart 1). Region 3 received 666,385 angler days (27.3%), region 1 was next with 517,188 angler days (21.2%). Regions 4 and 2 followed in pressure with 445,656 (18.2%) and 344,978 (14.1%) angler days respectively. Region 5 had a pressure of 286,160 (11.7%) angler days. The warm water regions of 6 and 7 were the lowest in pressure with 111,470 (4.6%) and 69,890 (2.9%) angler days respectively. Individual water estimates by regions are given in Appendix 1985G.

Angling in Montana was directed towards trout. Salmonid waters accounted for 89.7% (2,191,598 angler days) of the statewide pressure while nonsalmonid accounted for 7.8% (190,785 angler days) of the pressure and undesignated waters accounted for 2.5% (61,055 angler days) of the pressure (Chart 2). An undesignated water is one that could not be coded to an individual water, and thus water type, with the information provided and was assigned a generic code based on drainage and county.

Within salmonid waters, the streams received slightly more pressure than the lakes, 55.7% versus 44.3%. The nonsalmonid lake waters received more pressure than the nonsalmonid streams waters (58.7% versus 41.3%).

Salmonid angling dominated the pressure in regions 1, 2, 3, 4, and 5. Regions 6 and 7 were predominately nonsalmonid angling (Chart 16, Table 34).

Residents dominated the pressure in all regions with region 3 having the most of any region (Chart 17). In region 1 residents accounted for 71.5% and nonresidents 28.5% of the regional pressure. Salmonid lake fishing dominated with 65.4% of the total angling pressure within the region (Chart 5). Salmonid lake fishing was the largest of any region in the state accounting for 34.9% of the statewide salmonid lake fishing.

In region 2 residents and nonresidents accounted for 86.8% and 13.2% of the regional pressure respectively. Salmonid stream fishing was dominate accounting for 68.4% of the total regional angling pressure (Chart 6).

Table 34. Angling pressure in angler days by region by water type for the 1985 angling year

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	148,319	123,263	25,056
Salmonid Lake	338,151	219,941	118,210
Nonsalmonid Stream	344	344	0
Nonsalmonid Lake	16,365	16,091	274
Undesignated Stream	3,378	1,465	1,913
Undesignated Lake	10,631	8,435	2,196
TOTAL	517,188	369,539	147,649
REGION 2			
Salmonid Stream	236,038	200,333	35,705
Salmonid Lake	101,455	94,175	7,280
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,783	553	1,230
Undesignated Lake	5,702	4,464	1,238
TOTAL	344,978	299,525	45,453
REGION 3			
Salmonid Stream	440,575	264,755	175,820
Salmonid Lake	214,582	147,344	67,238
Nonsalmonid Stream	105	105	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	7,523	4,033	3,490
Undesignated Lake	3,600	2,574	1,026
TOTAL	666,385	418,811	247,574
REGION 4			
Salmonid Stream	201,237	186,738	14,499
Salmonid Lake	200,502	192,766	7,736
Nonsalmonid Stream	9,913	9,394	519
Nonsalmonid Lake	21,307	21,239	68
Undesignated Stream	6,296	4,822	1,474
Undesignated Lake	6,401	5,841	560
TOTAL	445,656	420,800	24,856

Table 34. Angling pressure in angler days by region by water type for the 1985 angling year (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 5			
Salmonid Stream	183,360	148,623	34,737
Salmonid Lake	90,321	80,746	9,575
Nonsalmonid Stream	5,937	5,800	137
Nonsalmonid Lake	1,288	1,288	0
Undesignated Stream	2,520	1,801	719
Undesignated Lake	2,734	1,326	1,408
TOTAL	286,160	239,584	46,576
REGION 6			
Salmonid Stream	10,976	10,703	273
Salmonid Lake	23,168	22,689	479
Nonsalmonid Stream	24,636	22,781	1,855
Nonsalmonid Lake	47,097	45,806	1,291
Undesignated Stream	315	315	0
Undesignated Lake	5,278	5,278	0
TOTAL	111,470	107,572	3,898
REGION 7			
Salmonid Stream	995	835	160
Salmonid Lake	1,919	1,743	176
Nonsalmonid Stream	37,778	31,956	5,822
Nonsalmonid Lake	26,015	23,300	2,715
Undesignated Stream	538	538	0
Undesignated Lake	2,645	2,508	137
TOTAL	69,890	60,880	9,010
STATEWIDE			
Salmonid Stream	1,221,500	935,250	286,250
Salmonid Lake	970,098	759,404	210,694
Nonsalmonid Stream	78,713	70,380	8,333
Nonsalmonid Lake	112,072	107,724	4,348
Undesignated Stream	24,064	13,527	10,537
Undesignated Lake	36,991	30,426	6,565
TOTAL	2,443,438	1,916,711	526,727

In region 3 residents accounted for 62.8% of the regional pressure and nonresidents made up the remaining 37.2% of the pressure. Salmonid stream and lake fishing was the largest for any region accounting for 36.1% of the statewide total. Within the region salmonid stream fishing dominated with 66.1% of the regional pressure (Chart 7).

In region 4 residents and nonresidents accounted for 94.4% and 5.6% of the regional pressure respectively. Region 4's pressure was evenly split between salmonid lakes (45.0%) and salmonid streams (45.2%) (Chart 8).

Within region 5 residents accounted for 83.7% and nonresidents

16.3% of the regional pressure. Salmonid streams provided the majority of the pressure (64.1%) (Chart 9).

In region 6 residents provided 96.5% of the pressure, while in Region 7 residents provided 87.1% of the pressure. Regions 6 and 7 provided the majority of the statewide nonsalmonid pressure. Region 6 maintained the states largest pressure for nonsalmonid lakes (42.0%) (Chart 10) while region 7 maintained the states largest pressure for nonsalmonid streams (48.0%) (Chart 11).

The first half of July (wave 6) was the peak fishing period for the year and likewise the peak fishing period for residents. (Table 35) Nonresidents preferred the second half of July for angling (excluding 2-day permit holders). the least fished period was November (wave 14) for the year and for residents December (wave 15) was the least fished for nonresidents. The majority of the nonresident pressure (71.8%) was exerted by the 2-day license holders. Since these anglers were sampled once at the end of the license year the pressure could not be classified into waves although it can logically be assigned to the summer season.

Table 35. Pressure in angler days by wave for 1985

WAVE	TOTAL	RESIDENT	NONRESIDENT
1	61,298	59,625	1,673
2	98,504	94,307	4,197
3	196,427	184,047	12,380
4	171,795	163,054	8,741
5	179,675	165,769	13,906
6	212,267	197,275	14,992
7	191,789	158,519	33,270
8	179,942	161,981	17,961
9	197,299	179,700	17,599
10	99,701	96,828	2,873
11	92,131	86,649	5,482
12	70,567	64,539	6,028
13	52,067	50,648	1,419
14	47,262	45,632	1,630
15	66,770	65,551	1,219
16	74,154	71,612	2,542
17	73,693	70,975	2,718
24	378,097		378,097

Angling pressure was summarized by the 22 major drainages within the state (Table 36). See 1982 results for a description of the areas covered by each drainage. Pressure ranged from 399,276 angler days for the upper Missouri River drainage to 2,094 angler days for the Little Missouri River drainage.

Statewide Angling Pressure
Comparing Regional Water Types
1985

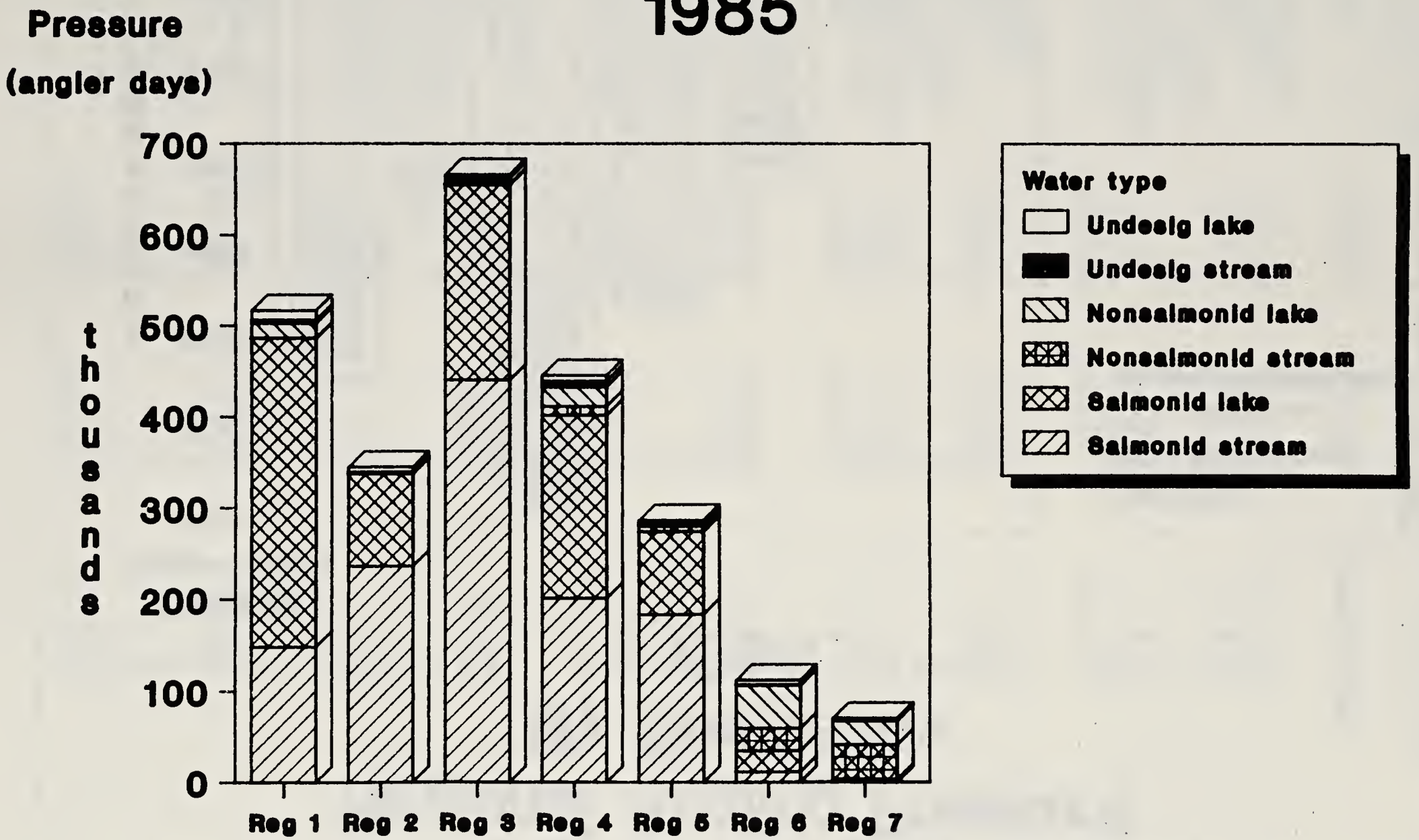


Chart 16. Amount of licensed angling pressure in angler days for each FWP region by water type for 1985

Regional Angling Pressure By Residency 1985

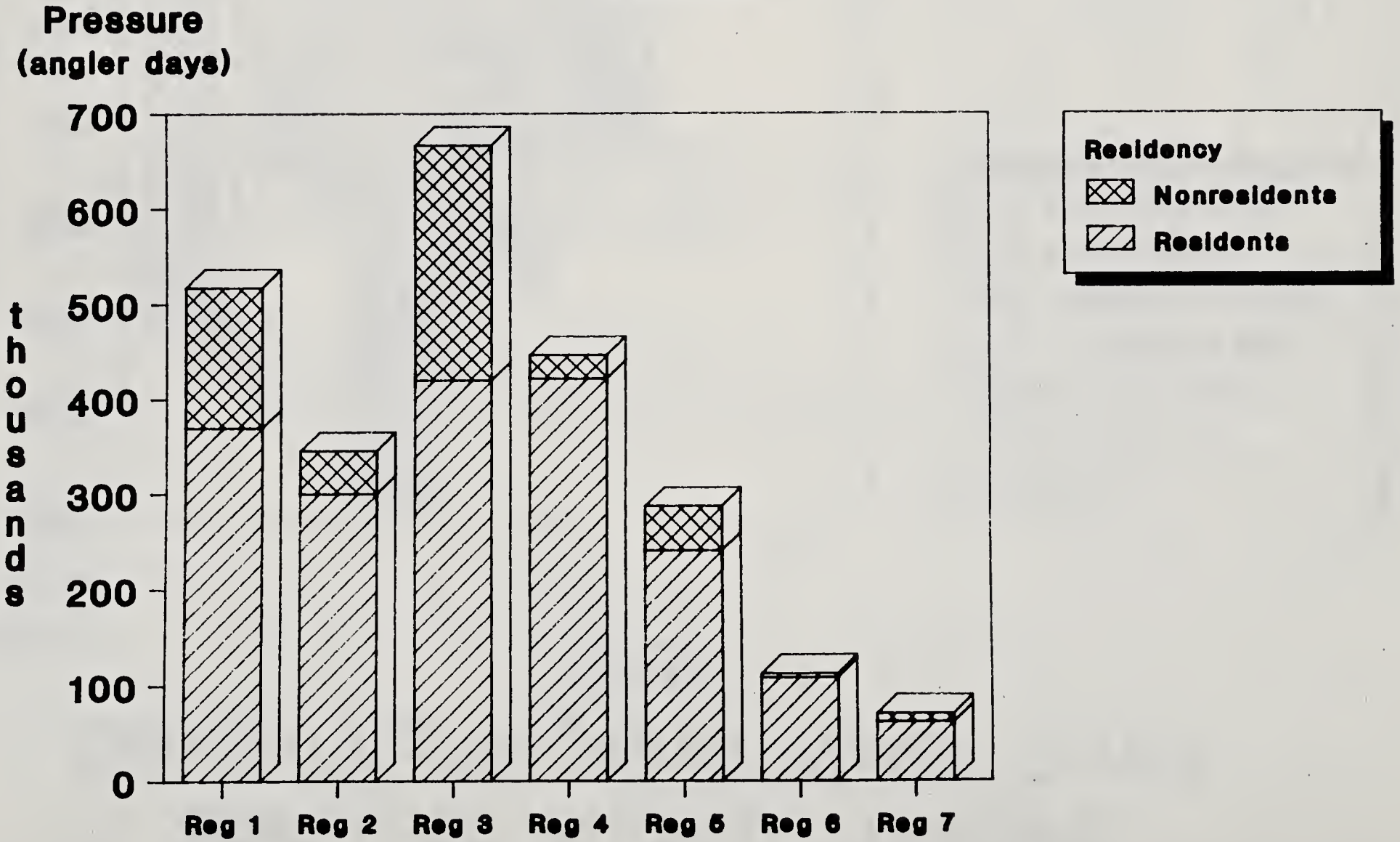


Chart 17. Amount of licensed angling pressure in angler days for each FWP region by residency for 1985

Table 36. Angling pressure in angler days by drainage by water type for the 1985 angling season of March '85 through February '86

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Beaverhead Drainage			
Salmonid Stream	50,117	28,395	21,722
Salmonid Lake	43,175	25,649	17,526
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	481	344	137
Undesignated Lake	753	685	68
TOTAL	94,526	55,073	39,453
Big Hole Drainage			
Salmonid Stream	66,531	49,961	16,570
Salmonid Lake	5,949	5,122	827
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,097	1,029	68
Undesignated Lake	310	105	205
TOTAL	73,887	56,217	17,670
Bitterroot Drainage			
Salmonid Stream	89,700	77,773	11,927
Salmonid Lake	6,632	5,799	833
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	410	0	410
Undesignated Lake	1,144	1,144	0
TOTAL	97,886	84,716	13,170
Blackfoot Drainage			
Salmonid Stream	37,869	34,131	3,738
Salmonid Lake	35,357	33,697	1,660
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	895	553	342
Undesignated Lake	786	376	410
TOTAL	74,907	68,757	6,150
Lower Clark Fork Drainage			
Salmonid Stream	58,486	47,940	10,546
Salmonid Lake	22,396	17,738	4,658
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	479	0	479
Undesignated Lake	1,940	1,043	897
TOTAL	83,301	66,721	16,580

Table 36. Angling pressure in angler days by drainage by water type for the 1985 angling season of March '85 through February '86 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Upper Clark Fork Drainage			
Salmonid Stream	72,284	60,075	12,209
Salmonid Lake	56,253	52,193	4,060
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	483	210	273
Undesignated Lake	2,951	2,883	68
TOTAL	131,971	115,361	16,610
Lower Flathead Drainage			
Salmonid Stream	59,553	53,104	6,449
Salmonid Lake	165,969	137,330	28,639
Nonsalmonid Stream	344	344	0
Nonsalmonid Lake	15,785	15,511	274
Undesignated Stream	1,406	996	410
Undesignated Lake	5,223	4,128	1,095
TOTAL	248,280	211,413	36,867
Upper Flathead Drainage			
Salmonid Stream	18,552	12,866	5,686
Salmonid Lake	16,815	14,160	2,655
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	682	0	682
Undesignated Lake	1,390	905	485
TOTAL	37,439	27,931	9,508
Gallatin Drainage			
Salmonid Stream	84,176	52,993	31,183
Salmonid Lake	7,203	6,492	711
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	753	0	753
Undesignated Lake	509	372	137
TOTAL	92,641	59,857	32,784
Jefferson Drainage			
Salmonid Stream	29,129	25,868	3,261
Salmonid Lake	10,217	10,149	68
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	920	920	0
Undesignated Lake	1,412	1,412	0
TOTAL	41,678	38,349	3,329

Table 36. Angling pressure in angler days by drainage by water type for the 1985 angling season of March '85 through February '86 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Kootenai Drainage			
Salmonid Stream	48,977	38,771	10,206
Salmonid Lake	136,184	53,199	82,985
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	580	580	0
Undesignated Stream	1,153	469	684
Undesignated Lake	2,899	2,420	479
TOTAL	189,793	95,439	94,354
Little Missouri Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	237	61	176
Nonsalmonid Stream	1,648	1,374	274
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	209	209	0
TOTAL	2,094	1,644	450
Madison Drainage			
Salmonid Stream	119,699	38,924	80,775
Salmonid Lake	64,319	21,964	42,355
Nonsalmonid Stream	105	105	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,051	477	1,574
Undesignated Lake	616	0	616
TOTAL	186,790	61,470	125,320
Marias Drainage			
Salmonid Stream	5,925	5,623	302
Salmonid Lake	28,316	26,396	1,920
Nonsalmonid Stream	2,161	2,161	0
Nonsalmonid Lake	20,855	20,787	68
Undesignated Stream	1,501	1,242	259
Undesignated Lake	1,570	1,556	14
TOTAL	60,328	57,765	2,563
Milk Drainage			
Salmonid Stream	6,233	6,097	136
Salmonid Lake	13,992	13,855	137
Nonsalmonid Stream	8,671	8,671	0
Nonsalmonid Lake	5,443	5,443	0
Undesignated Stream	283	283	0
Undesignated Lake	3,092	3,092	0
TOTAL	37,714	37,441	273

Table 36. Angling pressure in angler days by drainage by water type for the 1985 angling season of March '85 through February '86 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Missouri Drainage			
Salmonid Stream	27,351	25,571	1,780
Salmonid Lake	12,444	12,102	342
Nonsalmonid Stream	18,585	16,456	2,129
Nonsalmonid Lake	41,654	40,363	1,291
Undesignated Stream	596	459	137
Undesignated Lake	3,473	3,336	137
TOTAL	104,103	98,287	5,816
Upper Missouri Drainage			
Salmonid Stream	184,731	171,205	13,526
Salmonid Lake	201,798	191,692	10,106
Nonsalmonid Stream	6,285	6,040	245
Nonsalmonid Lake	0	0	0
Undesignated Stream	3,590	2,511	1,079
Undesignated Lake	2,872	2,531	341
TOTAL	399,276	373,979	25,297
Musselshell Drainage			
Salmonid Stream	14,306	12,690	1,616
Salmonid Lake	24,152	23,467	685
Nonsalmonid Stream	344	344	0
Nonsalmonid Lake	105	105	0
Undesignated Stream	1,581	1,513	68
Undesignated Lake	930	930	0
TOTAL	41,418	39,049	2,369
St Mary Drainage			
Salmonid Stream	405	0	405
Salmonid Lake	1,495	1,208	287
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	68	0	68
Undesignated Lake	0	0	0
TOTAL	1,968	1,208	760
Sun Drainage			
Salmonid Stream	9,899	9,021	878
Salmonid Lake	33,178	32,377	801
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	347	347	0
Undesignated Stream	1,238	1,170	68
Undesignated Lake	221	153	68
TOTAL	44,883	43,068	1,815

Table 36. Angling pressure in angler days by drainage by water type for the 1985 angling season of March '85 through February '86 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Yellowstone Drainage			
Salmonid Stream	995	835	160
Salmonid Lake	1,682	1,682	0
Nonsalmonid Stream	34,633	29,085	5,548
Nonsalmonid Lake	26,015	23,300	2,715
Undesignated Stream	538	538	0
Undesignated Lake	2,436	2,299	137
TOTAL	66,299	57,739	8,560
Upper Yellowstone Drainage			
Salmonid Stream	236,582	183,407	53,175
Salmonid Lake	82,335	73,072	9,263
Nonsalmonid Stream	5,937	5,800	137
Nonsalmonid Lake	1,288	1,288	0
Undesignated Stream	2,148	813	1,335
Undesignated Lake	2,255	847	1,408
TOTAL	330,545	265,227	65,318

Catch rates were determined by taking all salmonids and nonsalmonids caught and dividing by the total hours fished. Catch rates (fish/hour) for 1985 ranged from a high of 1.95 for Region 1 to a low of 0.98 for Region 6 (Table 37). The catch rate statewide was 1.54 fish/hour. Nonsalmonid lakes led the way statewide with a catch rate of 1.65 fish/hour while nonsalmonid streams had the smallest catch rate of 0.77 fish/hour.

Harvest varied from a high of 2,663,947 fish for Region 1 to a low of 180,557 fish for Region 7 (Table 38). Salmonid lakes led the way statewide in harvest with 4,045,589 fish taken. Undesignated stream management had the smallest harvest of 68,548 fish. Overall 7,254,749 fish were taken from Montana waters during the 1985 license years.

Table 37. Catch rates (fish/hour) by region by water type for the 1985 angling year - March '85 through February '86
(Number of respondents in parenthesis)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	1.77 (874)	1.80 (534)	1.73 (340)
Salmonid Lake	1.97 (2,730)	1.97 (1,145)	1.95 (1,585)
Nonsalmonid Stream	1.00 (1)	1.00 (1)	0.00 (0)
Nonsalmonid Lake	3.73 (92)	3.81 (88)	2.04 (4)
Undesignated Stream	1.74 (38)	1.00 (10)	1.92 (28)
Undesignated Lake	1.16 (75)	1.42 (45)	1.13 (30)
TOTAL	1.95 (3,810)	1.99 (1,823)	1.90 (1,987)
REGION 2			
Salmonid Stream	1.53 (1,450)	1.47 (958)	1.68 (492)
Salmonid Lake	1.39 (528)	1.50 (432)	0.91 (96)
Nonsalmonid Stream	0.00 (0)	0.00 (0)	0.00 (0)
Nonsalmonid Lake	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Stream	1.44 (20)	6.00 (2)	0.94 (18)
Undesignated Lake	2.14 (34)	2.68 (20)	1.25 (14)
TOTAL	1.51 (2,032)	1.51 (1,412)	1.53 (620)
REGION 3			
Salmonid Stream	1.76 (3,742)	1.91 (1,351)	1.65 (2,391)
Salmonid Lake	1.10 (1,745)	1.31 (811)	0.93 (934)
Nonsalmonid Stream	0.00 (1)	0.00 (1)	0.00 (0)
Nonsalmonid Lake	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Stream	1.23 (62)	2.20 (18)	0.81 (44)
Undesignated Lake	1.11 (29)	1.67 (14)	0.78 (15)
TOTAL	1.54 (5,579)	1.69 (2,195)	1.44 (3,384)
REGION 4			
Salmonid Stream	1.45 (1,211)	1.52 (1,008)	1.21 (203)
Salmonid Lake	0.86 (1,115)	0.85 (1,001)	1.14 (114)
Nonsalmonid Stream	0.75 (71)	0.71 (64)	1.06 (7)
Nonsalmonid Lake	1.16 (140)	1.18 (139)	0.00 (1)
Undesignated Stream	2.55 (37)	2.66 (17)	2.33 (20)
Undesignated Lake	1.51 (32)	1.66 (24)	0.95 (8)
TOTAL	1.18 (2,606)	1.19 (2,253)	1.24 (353)

Table 37. Catch rates (fish/hour) by region by water type for the 1985 angling year - March '85 through February '86 (continued)

(Number of respondents in parenthesis)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 5			
Salmonid Stream	1.29 (1,331)	1.31 (858)	1.31 (473)
Salmonid Lake	2.02 (581)	2.49 (443)	0.54 (138)
Nonsalmonid Stream	0.43 (36)	0.45 (34)	0.09 (2)
Nonsalmonid Lake	1.19 (7)	1.19 (7)	0.00 (0)
Undesignated Stream	1.05 (25)	1.34 (16)	0.53 (9)
Undesignated Lake	1.17 (28)	1.58 (10)	1.00 (18)
TOTAL	1.48 (2,008)	1.67 (1,368)	1.12 (640)
REGION 6			
Salmonid Stream	0.89 (65)	0.95 (61)	0.48 (4)
Salmonid Lake	1.46 (132)	1.52 (125)	0.31 (7)
Nonsalmonid Stream	0.67 (158)	0.80 (128)	0.20 (30)
Nonsalmonid Lake	0.94 (260)	0.99 (243)	0.26 (17)
Undesignated Stream	1.35 (4)	1.35 (4)	0.00 (0)
Undesignated Lake	1.10 (26)	1.10 (26)	0.00 (0)
TOTAL	0.98 (645)	1.06 (587)	0.25 (58)
REGION 7			
Salmonid Stream	0.59 (13)	0.69 (7)	0.48 (6)
Salmonid Lake	0.76 (11)	0.72 (10)	1.20 (1)
Nonsalmonid Stream	0.88 (259)	1.23 (174)	0.27 (85)
Nonsalmonid Lake	2.07 (149)	2.35 (105)	1.58 (44)
Undesignated Stream	1.50 (2)	1.50 (2)	0.00 (0)
Undesignated Lake	4.60 (14)	5.22 (12)	0.88 (2)
TOTAL	1.38 (448)	1.73 (310)	0.71 (138)
STATEWIDE			
Salmonid Stream	1.60 (8,686)	1.61 (4,777)	1.60 (3,909)
Salmonid Lake	1.51 (6,842)	1.54 (3,967)	1.48 (2,875)
Nonsalmonid Stream	0.77 (526)	0.94 (402)	0.29 (124)
Nonsalmonid Lake	1.65 (648)	1.71 (582)	1.24 (66)
Undesignated Stream	1.56 (198)	1.98 (69)	1.29 (129)
Undesignated Lake	1.54 (238)	1.90 (151)	1.04 (87)
TOTAL	1.54 (17,138)	1.57 (9,948)	1.51 (7,190)

Table 38. Harvest (number of fish) by region by water type for the 1985 angling year - March '85 through February '86 (sample sizes same as for catch rates - Table 37)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	418,393	349,102	69,291
Salmonid Lake	2,060,207	1,041,065	1,019,142
Nonsalmonid Stream	689	689	0
Nonsalmonid Lake	135,612	133,490	2,122
Undesignated Stream	9,292	4,774	4,518
Undesignated Lake	39,754	27,414	12,340
TOTAL	2,663,947	1,556,534	1,107,413
REGION 2			
Salmonid Stream	380,261	328,782	51,479
Salmonid Lake	360,680	341,726	18,954
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,744	1,033	1,711
Undesignated Lake	17,716	13,914	3,802
TOTAL	761,401	685,455	75,946
REGION 3			
Salmonid Stream	774,118	576,867	197,251
Salmonid Lake	799,113	674,711	124,420
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	19,175	15,384	3,791
Undesignated Lake	9,074	7,089	1,985
TOTAL	1,601,498	1,274,051	327,447
REGION 4			
Salmonid Stream	517,788	495,191	22,597
Salmonid Lake	511,278	492,518	18,760
Nonsalmonid Stream	17,320	16,362	958
Nonsalmonid Lake	37,849	37,849	0
Undesignated Stream	18,833	16,963	1,870
Undesignated Lake	21,830	19,640	2,190
TOTAL	1,124,898	1,078,523	46,375

Table 38. Harvest (number of fish) by region by water type for the 1985 angling year - March '85 through February '86 (continued)
(sample sizes same as for catch rates - Table 37)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 5			
Salmonid Stream	331,597	299,462	32,135
Salmonid Lake	238,018	217,686	20,332
Nonsalmonid Stream	5,685	5,617	68
Nonsalmonid Lake	286	286	0
Undesignated Stream	9,598	9,374	224
Undesignated Lake	3,973	2,171	1,802
TOTAL	589,157	534,596	54,561
REGION 6			
Salmonid Stream	31,785	31,443	342
Salmonid Lake	73,254	72,638	616
Nonsalmonid Stream	74,365	72,658	1,707
Nonsalmonid Lake	139,824	138,866	958
Undesignated Stream	5,474	5,474	0
Undesignated Lake	8,298	8,298	0
TOTAL	333,000	329,377	3,623
REGION 7			
Salmonid Stream	3,253	2,865	388
Salmonid Lake	3,021	3,021	0
Nonsalmonid Stream	56,873	51,816	5,057
Nonsalmonid Lake	103,157	91,812	11,345
Undesignated Stream	3,141	3,141	0
Undesignated Lake	11,112	10,770	342
TOTAL	180,557	163,425	17,132
STATEWIDE			
Salmonid Stream	2,457,195	2,083,712	373,483
Salmonid Lake	4,045,589	2,843,365	1,202,224
Nonsalmonid Stream	154,932	147,142	7,790
Nonsalmonid Lake	416,728	402,303	14,425
Undesignated Stream	68,548	56,143	12,405
Undesignated Lake	111,757	89,296	22,461
TOTAL	7,254,749	5,621,961	1,632,788

The "summer" season for angling in Montana is considered as that period of the year between the first of May through the end of September. In 1985 1,953,931 (80.0%) of the angling pressure occurred during this period (Table 39). Regions 1, 2, 3, and 7 led the rest of the regions with the majority of their fishing pressure occurring in the "summer" season. Region 1 had 81.7% (422,675 angler days), region 2 had 84.4% (291,047 angler days), region 3 had 82.6% (270,676 angler days), and region 7 had 84.2% (58,869 angler days) of the pressure occurring during this period. Regions 4, 5, and 6 were very similiar in the percent of pressure occurring during the "summer" period. Region 4 had

74.4% (331,445 angler days), region 5 had 74.6% (213,614 angler days), and region 6 had 75.3% (83,928 angler days) of their respective pressure happening during this time period. Region 3 had the most pressure during this season with 550,642 angler days, while Region 7 had the least with 58,869 angler days.

Residents provided 73.9% of the pressure with the nonresidents making up the remaining 26.1%. Salmonid streams led in regards to water types with 996,990 angler days while undesignated stream management was lowest with 20,307 angler days.

Table 39. Angling pressure in angler days by region by water type for the "summer" season of May '85 through September '85

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	131,813	108,092	23,721
Salmonid Lake	268,390	152,713	115,677
Nonsalmonid Stream	344	344	0
Nonsalmonid Lake	12,677	12,403	274
Undesignated Stream	3,026	1,113	1,913
Undesignated Lake	6,425	4,229	2,196
TOTAL	422,675	278,894	143,781
REGION 2			
Salmonid Stream	198,034	164,905	33,129
Salmonid Lake	85,831	78,633	7,198
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,783	533	1,230
Undesignated Lake	5,399	4,161	1,238
TOTAL	291,047	248,252	42,795
REGION 3			
Salmonid Stream	372,773	199,995	172,778
Salmonid Lake	167,419	102,672	64,747
Nonsalmonid Stream	105	105	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	6,745	3,255	3,490
Undesignated Lake	3,600	2,574	1,026
TOTAL	550,642	308,601	242,041
REGION 4			
Salmonid Stream	151,313	137,059	14,254
Salmonid Lake	143,721	136,384	7,337
Nonsalmonid Stream	7,257	6,738	519
Nonsalmonid Lake	19,143	19,075	68
Undesignated Stream	6,082	4,729	1,353
Undesignated Lake	3,929	3,383	546
TOTAL	331,445	307,368	24,077

Table 39. Angling pressure in angler days by region by water type for the "summer" season of May '85 through September '85 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 5			
Salmonid Stream	133,059	100,651	32,408
Salmonid Lake	73,215	64,839	8,376
Nonsalmonid Stream	3,073	2,936	137
Nonsalmonid Lake	876	876	0
Undesignated Stream	960	344	616
Undesignated Lake	2,431	1,023	1,408
TOTAL	213,614	170,669	42,945
REGION 6			
Salmonid Stream	9,210	8,937	273
Salmonid Lake	14,565	14,086	479
Nonsalmonid Stream	18,920	17,167	1,753
Nonsalmonid Lake	36,803	35,512	1,291
Undesignated Stream	0	0	0
Undesignated Lake	4,430	4,430	0
TOTAL	83,928	80,132	3,796
REGION 7			
Salmonid Stream	788	650	138
Salmonid Lake	1,420	1,244	176
Nonsalmonid Stream	31,132	25,692	5,440
Nonsalmonid Lake	23,066	20,806	2,260
Undesignated Stream	0	0	0
Undesignated Lake	2,463	2,326	137
TOTAL	58,869	50,718	8,151
STATEWIDE			
Salmonid Stream	996,990	720,289	276,701
Salmonid Lake	754,561	550,571	203,990
Nonsalmonid Stream	60,831	52,982	7,846
Nonsalmonid Lake	92,565	88,672	3,893
Undesignated Stream	20,307	9,994	10,313
Undesignated Lake	28,677	22,126	6,551
TOTAL	1,953,931	1,444,634	509,297

"Summer" angling pressure by drainage (Table 40) ranged from 288,918 angler days for the upper Missouri drainage to 1,413 angler days for the St Mary River drainage.

Table 40. Angling pressure in angler days by drainage by water type for the 1985 "summer" angling season of May '85 through September '85

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Beaverhead Drainage			
Salmonid Stream	38,381	17,344	21,037
Salmonid Lake	31,840	15,475	16,365
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	481	344	137
Undesignated Lake	753	685	68
TOTAL	71,455	33,848	37,607
Big Hole Drainage			
Salmonid Stream	61,718	45,148	16,570
Salmonid Lake	5,858	5,031	827
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,097	1,029	68
Undesignated Lake	310	105	205
TOTAL	68,983	51,313	17,670
Bitterroot Drainage			
Salmonid Stream	81,882	70,191	11,691
Salmonid Lake	5,859	5,041	818
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	410	0	410
Undesignated Lake	966	966	0
TOTAL	89,117	76,198	12,919
Blackfoot Drainage			
Salmonid Stream	29,471	25,747	3,724
Salmonid Lake	30,542	28,949	1,593
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	895	553	342
Undesignated Lake	754	344	410
TOTAL	61,662	55,593	6,069
Lower Clark Fork Drainage			
Salmonid Stream	46,398	37,671	8,727
Salmonid Lake	17,735	13,207	4,528
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	479	0	479
Undesignated Lake	1,879	982	897
TOTAL	66,491	51,860	14,631

Table 40. Angling pressure in angler days by drainage by water type for the 1985 "summer" angling season of May '85 through September '85 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Upper Clark Fork Drainage			
Salmonid Stream	59,271	48,073	11,198
Salmonid Lake	46,249	42,189	4,060
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	483	210	273
Undesignated Lake	2,919	2,851	68
TOTAL	108,922	93,323	15,599
Lower Flathead Drainage			
Salmonid Stream	55,897	49,657	6,240
Salmonid Lake	116,854	89,655	27,199
Nonsalmonid Stream	344	344	0
Nonsalmonid Lake	12,323	12,049	274
Undesignated Stream	1,181	771	410
Undesignated Lake	2,649	1,554	1,095
TOTAL	189,248	154,030	35,218
Upper Flathead Drainage			
Salmonid Stream	18,135	12,866	5,269
Salmonid Lake	14,539	12,533	2,006
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	682	0	682
Undesignated Lake	753	268	485
TOTAL	34,109	25,667	8,442
Gallatin Drainage			
Salmonid Stream	74,637	43,971	30,666
Salmonid Lake	6,569	5,858	711
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	753	0	753
Undesignated Lake	509	372	137
TOTAL	82,468	50,201	32,267
Jefferson Drainage			
Salmonid Stream	21,240	17,979	3,261
Salmonid Lake	8,627	8,559	68
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	920	920	0
Undesignated Lake	1,412	1,412	0
TOTAL	32,199	28,870	3,329

Table 40. Angling pressure in angler days by drainage by water type for the 1985 "summer" angling season of May '85 through September '85 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Kootenai Drainage			
Salmonid Stream	39,857	29,856	10,001
Salmonid Lake	122,443	39,772	82,671
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	354	354	0
Undesignated Stream	1,026	342	684
Undesignated Lake	1,904	1,425	479
TOTAL	165,584	71,749	93,835
Little Missouri Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	176	0	176
Nonsalmonid Stream	1,345	1,071	274
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	209	209	0
TOTAL	1,730	1,280	450
Madison Drainage			
Salmonid Stream	104,503	25,400	79,103
Salmonid Lake	59,757	18,547	41,210
Nonsalmonid Stream	105	105	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,051	477	1,574
Undesignated Lake	616	0	616
TOTAL	167,032	44,529	122,503
Marias Drainage			
Salmonid Stream	4,506	4,233	273
Salmonid Lake	21,290	19,486	1,804
Nonsalmonid Stream	1,220	1,220	0
Nonsalmonid Lake	19,038	18,970	68
Undesignated Stream	1,501	1,242	259
Undesignated Lake	1,378	1,378	0
TOTAL	48,933	46,529	2,404
Milk Drainage			
Salmonid Stream	5,668	5,532	136
Salmonid Lake	9,130	8,993	137
Nonsalmonid Stream	5,916	5,916	0
Nonsalmonid Lake	3,213	3,213	0
Undesignated Stream	0	0	0
Undesignated Lake	2,367	2,367	0
TOTAL	26,294	26,021	273

Table 40. Angling pressure in angler days by drainage by water type for the 1985 "summer" angling season of May '85 through September '85 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Missouri Drainage			
Salmonid Stream	23,254	21,474	1,780
Salmonid Lake	6,777	6,435	342
Nonsalmonid Stream	15,624	13,597	2,027
Nonsalmonid Lake	33,590	32,299	1,291
Undesignated Stream	564	427	137
Undesignated Lake	2,898	2,761	137
TOTAL	82,707	76,993	5,714
Upper Missouri Drainage			
Salmonid Stream	134,717	121,407	13,310
Salmonid Lake	145,103	135,197	9,906
Nonsalmonid Stream	4,570	4,325	245
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,880	1,922	958
Undesignated Lake	1,648	1,307	341
TOTAL	288,918	264,158	24,760
Musselshell Drainage			
Salmonid Stream	11,861	10,451	1,410
Salmonid Lake	17,043	16,358	685
Nonsalmonid Stream	344	344	0
Nonsalmonid Lake	105	105	0
Undesignated Stream	412	344	68
Undesignated Lake	237	237	0
TOTAL	30,002	27,839	2,163
St Mary Drainage			
Salmonid Stream	405	0	405
Salmonid Lake	940	803	137
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	68	0	68
Undesignated Lake	0	0	0
TOTAL	1,413	803	610
Sun Drainage			
Salmonid Stream	8,857	7,979	878
Salmonid Lake	16,055	15,372	683
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,206	1,138	68
Undesignated Lake	68	0	68
TOTAL	26,186	24,489	1,697

Table 40. Angling pressure in angler days by drainage by water type for the 1985 "summer" angling season of May '85 through September '85 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Yellowstone Drainage			
Salmonid Stream	788	650	138
Salmonid Lake	1,244	1,244	0
Nonsalmonid Stream	28,290	23,124	5,166
Nonsalmonid Lake	23,066	20,806	2,260
Undesignated Stream	0	0	0
Undesignated Lake	2,254	2,117	137
TOTAL	55,642	47,941	7,701
Upper Yellowstone Drainage			
Salmonid Stream	175,544	124,660	50,884
Salmonid Lake	69,931	61,867	8,064
Nonsalmonid Stream	3,073	2,936	137
Nonsalmonid Lake	876	876	0
Undesignated Stream	1,507	275	1,232
Undesignated Lake	2,194	786	1,408
TOTAL	253,125	191,400	61,725

Catch rates (fish/hour) were calculated for the "summer" season (Table 41). They ranged from a high of 1.82 fish/hour for Region 5 to a low of 0.91 fish/hour for region 6. Undesignated lake management led all water types statewide with a catch rate of 1.66 fish/hour while nonsalmonid streams showed the smallest catch rate of 0.80 fish/hour. Overall statewide showed a catch rate of 1.51 fish/hour with residents at 1.56 fish/hour and nonresidents at 1.48 fish/hour.

Statewide harvest during the "summer" of 1985 showed 5,401,937 fish taken (Table 42). Region 1 led all regions with 2,127,103 fish harvested while Region 7 showed the smallest take of 150,383 fish. Salmonid lakes showed the largest harvest statewide with 2,998,770 fish and undesignated stream management showed the least harvest of 52,222 fish.

Table 41. Catch rates (fish/hour) by region by water type for the 1985 "summer" season of May '85 through September '85 (Number of respondents in parenthesis)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	1.78 (739)	1.80 (428)	1.73 (311)
Salmonid Lake	1.81 (2,142)	1.59 (607)	1.89 (1,535)
Nonsalmonid Stream	1.00 (1)	1.00 (1)	0.00 (0)
Nonsalmonid Lake	3.41 (55)	3.51 (51)	2.04 (4)
Undesignated Stream	1.80 (33)	0.93 (5)	1.92 (28)
Undesignated Lake	1.17 (50)	1.34 (20)	1.13 (30)
TOTAL	1.82 (3,020)	1.75 (1,120)	1.85 (1,908)
REGION 2			
Salmonid Stream	1.44 (1,038)	1.41 (615)	1.54 (423)
Salmonid Lake	1.21 (394)	1.28 (306)	0.99 (88)
Nonsalmonid Stream	0.00 (0)	0.00 (0)	0.00 (0)
Nonsalmonid Lake	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Stream	1.44 (20)	6.00 (2)	0.94 (18)
Undesignated Lake	2.15 (30)	2.93 (16)	1.25 (14)
TOTAL	1.40 (1,482)	1.40 (939)	1.42 (543)
REGION 3			
Salmonid Stream	1.75 (3,111)	2.00 (821)	1.67 (2,290)
Salmonid Lake	0.89 (1,285)	0.97 (457)	0.84 (828)
Nonsalmonid Stream	0.00 (1)	0.00 (1)	0.00 (0)
Nonsalmonid Lake	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Stream	1.25 (59)	2.46 (15)	0.81 (44)
Undesignated Lake	1.11 (29)	1.67 (14)	0.78 (15)
TOTAL	1.49 (3,938)	1.64 (1,308)	1.44 (3,177)
REGION 4			
Salmonid Stream	1.37 (769)	1.47 (573)	1.18 (196)
Salmonid Lake	0.82 (679)	0.84 (580)	0.76 (99)
Nonsalmonid Stream	0.71 (38)	0.61 (31)	1.06 (7)
Nonsalmonid Lake	1.30 (124)	1.34 (123)	0.00 (1)
Undesignated Stream	1.79 (34)	3.01 (15)	0.70 (19)
Undesignated Lake	1.81 (17)	2.14 (10)	1.09 (7)
TOTAL	1.14 (1,661)	1.18 (1,332)	1.02 (329)

Table 41. Catch rates (fish/hour) by region by water type for the 1985 "summer" season of May '85 through September '85 (continued)

(Number of respondents in parenthesis)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 5			
Salmonid Stream	1.33 (871)	1.45 (435)	1.32 (436)
Salmonid Lake	2.49 (413)	3.26 (295)	0.57 (118)
Nonsalmonid Stream	0.61 (15)	0.72 (13)	0.09 (2)
Nonsalmonid Lake	0.81 (4)	0.81 (4)	0.00 (0)
Undesignated Stream	1.86 (9)	12.00 (1)	0.59 (8)
Undesignated Lake	1.11 (23)	1.67 (5)	1.00 (18)
TOTAL	1.68 (1,335)	2.16 (753)	1.15 (582)
REGION 6			
Salmonid Stream	0.69 (43)	0.74 (39)	0.48 (4)
Salmonid Lake	0.86 (67)	0.93 (60)	0.31 (7)
Nonsalmonid Stream	0.65 (97)	0.78 (74)	0.24 (23)
Nonsalmonid Lake	1.10 (178)	1.19 (161)	0.26 (17)
Undesignated Stream	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Lake	1.04 (16)	1.04 (16)	0.00 (0)
TOTAL	0.91 (401)	1.00 (350)	0.27 (51)
REGION 7			
Salmonid Stream	1.08 (6)	1.17 (3)	1.00 (3)
Salmonid Lake	0.97 (9)	0.94 (8)	1.20 (1)
Nonsalmonid Stream	0.92 (189)	1.45 (113)	0.23 (76)
Nonsalmonid Lake	1.96 (124)	2.24 (88)	1.69 (36)
Undesignated Stream	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Lake	5.77 (11)	6.86 (9)	0.88 (2)
TOTAL	1.46 (339)	1.96 (221)	0.72 (118)
STATEWIDE			
Salmonid Stream	1.60 (6,577)	1.64 (2,914)	1.59 (3,663)
Salmonid Lake	1.43 (4,989)	1.43 (2,313)	1.43 (2,676)
Nonsalmonid Stream	0.80 (341)	1.07 (233)	0.28 (108)
Nonsalmonid Lake	1.63 (485)	1.72 (427)	1.27 (58)
Undesignated Stream	1.50 (165)	2.91 (38)	1.05 (127)
Undesignated Lake	1.66 (176)	2.28 (90)	1.05 (86)
TOTAL	1.51 (12,733)	1.56 (6,015)	1.48 (6,718)

Table 42. Harvest (number of fish) by region by water type for the "summer" season - May '85 through September '85 (sample sizes same as for catch rates - Table 41)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	329,157	263,829	65,328
Salmonid Lake	1,681,030	675,451	1,005,579
Nonsalmonid Stream	689	689	0
Nonsalmonid Lake	85,378	83,256	2,122
Undesignated Stream	6,366	1,848	4,518
Undesignated Lake	24,483	12,143	12,340
TOTAL	2,127,103	1,037,216	1,089,887
REGION 2			
Salmonid Stream	268,389	229,059	39,330
Salmonid Lake	251,386	232,609	18,777
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	2,744	1,033	1,711
Undesignated Lake	16,272	12,470	3,802
TOTAL	538,791	475,171	63,620
REGION 3			
Salmonid Stream	610,894	417,660	193,234
Salmonid Lake	477,936	364,222	113,714
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	17,684	13,893	3,791
Undesignated Lake	9,074	7,089	1,985
TOTAL	1,115,588	802,864	312,724
REGION 4			
Salmonid Stream	367,147	344,608	22,539
Salmonid Lake	352,999	334,614	18,385
Nonsalmonid Stream	11,624	10,666	958
Nonsalmonid Lake	32,743	32,743	0
Undesignated Stream	18,712	16,963	1,749
Undesignated Lake	14,330	12,140	2,190
TOTAL	797,555	751,734	45,821

Table 42. Harvest (number of fish) by region by water type for the 1985 "summer" season - May '85 through September '85 (continued)
(sample sizes same as for catch rates - Table 41)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 5			
Salmonid Stream	234,449	205,019	29,430
Salmonid Lake	198,641	182,803	15,838
Nonsalmonid Stream	4,144	4,076	68
Nonsalmonid Lake	0	0	0
Undesignated Stream	6,425	6,201	224
Undesignated Lake	3,912	2,110	1,802
TOTAL	447,571	400,209	47,362
REGION 6			
Salmonid Stream	25,839	25,497	342
Salmonid Lake	33,976	33,360	616
Nonsalmonid Stream	46,388	44,739	1,649
Nonsalmonid Lake	112,204	111,246	958
Undesignated Stream	0	0	0
Undesignated Lake	6,248	6,248	0
TOTAL	224,655	221,090	3,565
REGION 7			
Salmonid Stream	3,000	2,620	380
Salmonid Lake	2,802	2,802	0
Nonsalmonid Stream	48,794	43,998	4,796
Nonsalmonid Lake	84,796	73,581	11,215
Undesignated Stream	0	0	0
Undesignated Lake	10,991	10,649	342
TOTAL	150,383	133,650	16,733
STATEWIDE			
Salmonid Stream	1,838,875	1,488,292	350,583
Salmonid Lake	2,998,770	1,825,861	1,172,909
Nonsalmonid Stream	111,639	104,168	7,471
Nonsalmonid Lake	315,121	300,826	14,295
Undesignated Stream	52,222	39,938	12,284
Undesignated Lake	85,310	62,849	22,461
TOTAL	5,401,937	3,821,934	1,580,003

The "winter" season for the 1985 angling year was March 1, 1985-April 30, 1985; October 1, 1985 through February 28, 1986. In 1985, 489,337 angler days (20.0%) of the annual fishing pressure occurred during this period (Table 43). The pressure from region to region ranged from a high of 115,747 angler days for Region 3 to a low of 11,020 angler days for Region 7. Salmonid streams led all water types statewide with a pressure of 224,509 angler days while undesignated stream management contained the least pressure of 3,757 angler days. Residents provided 96.4% (471,911 angler days) of the "winter" pressure.

Table 43. Angling pressure in angler days by region by water type for the "winter" season of March '85 through April '85, October '85 through February '86

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	16,504	15,169	1,335
Salmonid Lake	69,762	67,231	2,531
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	3,688	3,688	0
Undesignated Stream	353	353	0
Undesignated Lake	4,205	4,205	0
TOTAL	94,512	90,646	3,866
REGION 2			
Salmonid Stream	38,005	35,431	2,574
Salmonid Lake	15,662	15,541	81
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	303	303	0
TOTAL	53,930	51,275	2,655
REGION 3			
Salmonid Stream	67,803	64,762	3,041
Salmonid Lake	47,167	44,675	2,492
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	777	777	0
Undesignated Lake	0	0	0
TOTAL	115,747	110,214	5,533
REGION 4			
Salmonid Stream	49,922	49,676	246
Salmonid Lake	56,781	56,384	397
Nonsalmonid Stream	2,657	2,657	0
Nonsalmonid Lake	2,164	2,164	0
Undesignated Stream	214	93	121
Undesignated Lake	2,472	2,458	14
TOTAL	114,210	113,432	778

Table 43. Angling pressure in angler days by region by water type for the "winter" season of March '85 through April '85, October '85 through February '86 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 5			
Salmonid Stream	50,300	47,971	2,329
Salmonid Lake	16,930	15,730	1,200
Nonsalmonid Stream	2,864	2,864	0
Nonsalmonid Lake	412	412	0
Undesignated Stream	1,560	1,457	103
Undesignated Lake	303	303	0
TOTAL	72,369	68,737	3,632
REGION 6			
Salmonid Stream	1,768	1,768	0
Salmonid Lake	8,605	8,605	0
Nonsalmonid Stream	5,717	5,616	101
Nonsalmonid Lake	10,294	10,294	0
Undesignated Stream	315	315	0
Undesignated Lake	850	850	0
TOTAL	27,549	27,448	101
REGION 7			
Salmonid Stream	207	184	23
Salmonid Lake	499	499	0
Nonsalmonid Stream	6,646	6,264	382
Nonsalmonid Lake	2,948	2,492	456
Undesignated Stream	538	538	0
Undesignated Lake	182	182	0
TOTAL	11,020	10,159	861
STATEWIDE			
Salmonid Stream	224,509	214,961	9,548
Salmonid Lake	215,366	208,665	6,701
Nonsalmonid Stream	17,884	17,401	483
Nonsalmonid Lake	19,506	19,050	456
Undesignated Stream	3,757	3,533	224
Undesignated Lake	8,315	8,301	14
TOTAL	489,337	471,911	17,426

Winter angling pressure (Table 44) by drainage ranged from 110,358 angler days for the Upper Missouri River drainage to 364 angler days for the Little Missouri River drainage in Eastern Montana.

Table 44. Angling pressure in angler days by drainage by water type for the 1985 "winter" angling season of March '85 through April '85, October '85 through February '86

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Beaverhead Drainage			
Salmonid Stream	11,736	11,051	685
Salmonid Lake	11,335	10,173	1,162
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	23,071	21,224	1,847
Big Hole Drainage			
Salmonid Stream	4,815	4,815	0
Salmonid Lake	93	93	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	4,908	4,908	0
Bitterroot Drainage			
Salmonid Stream	7,819	7,584	235
Salmonid Lake	773	759	14
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	178	178	0
TOTAL	8,770	8,521	249
Blackfoot Drainage			
Salmonid Stream	8,398	8,384	14
Salmonid Lake	4,814	4,747	67
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	32	32	0
TOTAL	13,244	13,163	81
Lower Clark Fork Drainage			
Salmonid Stream	12,088	10,269	1,819
Salmonid Lake	4,663	4,533	130
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	61	61	0
TOTAL	16,812	14,863	1,949

Table 44. Angling pressure in angler days by drainage by water type for the 1985 "winter" angling season of March '85 through April '85, October '85 through February '86 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Upper Clark Fork Drainage			
Salmonid Stream	13,013	12,003	1,010
Salmonid Lake	10,003	10,003	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	32	32	0
TOTAL	23,048	22,038	1,010
Lower Flathead Drainage			
Salmonid Stream	3,656	3,447	209
Salmonid Lake	49,115	47,677	1,438
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	3,462	3,462	0
Undesignated Stream	226	226	0
Undesignated Lake	2,574	2,574	0
TOTAL	59,033	57,386	1,647
Upper Flathead Drainage			
Salmonid Stream	417	0	417
Salmonid Lake	2,276	1,627	649
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	637	637	0
TOTAL	3,330	2,264	1,066
Gallatin Drainage			
Salmonid Stream	9,539	9,022	517
Salmonid Lake	634	634	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	10,173	9,656	517
Jefferson Drainage			
Salmonid Stream	7,888	7,888	0
Salmonid Lake	1,589	1,589	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	9,477	9,477	0

Table 44. Angling pressure in angler days by drainage by water type for the 1985 "winter" angling season of March '85 through April '85, October '85 through February '86 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Kootenai Drainage			
Salmonid Stream	9,118	8,913	205
Salmonid Lake	13,740	13,426	314
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	226	226	0
Undesignated Stream	127	127	0
Undesignated Lake	994	994	0
TOTAL	24,205	23,686	519
Little Missouri Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	61	61	0
Nonsalmonid Stream	303	303	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	364	364	0
Madison Drainage			
Salmonid Stream	15,196	13,524	1,672
Salmonid Lake	4,563	3,418	1,145
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	19,759	16,942	2,817
Marias Drainage			
Salmonid Stream	1,419	1,390	29
Salmonid Lake	7,028	6,914	114
Nonsalmonid Stream	942	942	0
Nonsalmonid Lake	1,817	1,817	0
Undesignated Stream	0	0	0
Undesignated Lake	192	178	14
TOTAL	11,398	11,241	157
Milk Drainage			
Salmonid Stream	566	566	0
Salmonid Lake	4,864	4,864	0
Nonsalmonid Stream	2,755	2,755	0
Nonsalmonid Lake	2,230	2,230	0
Undesignated Stream	283	283	0
Undesignated Lake	726	726	0
TOTAL	11,424	11,424	0

Table 44. Angling pressure in angler days by drainage by water type for the 1985 "winter" angling season of March '85 through April '85, October '85 through February '86 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Missouri Drainage			
Salmonid Stream	4,097	4,097	0
Salmonid Lake	5,666	5,666	0
Nonsalmonid Stream	2,962	2,861	101
Nonsalmonid Lake	8,064	8,064	0
Undesignated Stream	32	32	0
Undesignated Lake	575	575	0
TOTAL	21,396	21,295	101
Upper Missouri Drainage			
Salmonid Stream	50,013	49,796	217
Salmonid Lake	56,696	56,495	201
Nonsalmonid Stream	1,715	1,715	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	709	588	121
Undesignated Lake	1,225	1,225	0
TOTAL	110,358	109,819	539
Musselshell Drainage			
Salmonid Stream	2,446	2,240	206
Salmonid Lake	7,109	7,109	0
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,169	1,169	0
Undesignated Lake	693	693	0
TOTAL	11,417	11,211	206
St Mary Drainage			
Salmonid Stream	0	0	0
Salmonid Lake	555	405	150
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	0	0	0
TOTAL	555	405	150
Sun Drainage			
Salmonid Stream	1,041	1,041	0
Salmonid Lake	17,123	17,006	117
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	347	347	0
Undesignated Stream	32	32	0
Undesignated Lake	153	153	0
TOTAL	18,696	18,579	117

Table 44. Angling pressure in angler days by drainage by water type for the 1985 "winter" angling season of March '85 through April '85, October '85 through February '86 (continued)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
Lower Yellowstone Drainage			
Salmonid Stream	207	184	23
Salmonid Lake	438	438	0
Nonsalmonid Stream	6,343	5,961	382
Nonsalmonid Lake	2,948	2,492	456
Undesignated Stream	538	538	0
Undesignated Lake	182	182	0
TOTAL	10,656	9,795	861
Upper Yellowstone Drainage			
Salmonid Stream	61,037	58,747	2,290
Salmonid Lake	12,228	11,028	1,200
Nonsalmonid Stream	2,864	2,864	0
Nonsalmonid Lake	412	412	0
Undesignated Stream	641	538	103
Undesignated Lake	61	61	0
TOTAL	77,243	73,650	3,593

Catch rates during the "winter" season ranged from 2.46 fish/hour for region 1 to 1.10 fish/hour for Region 7 (Table 45). Undesignated stream management had the largest catch rate statewide with 1.79 fish/hour while nonsalmonid streams had the smallest catch rate of 0.67 fish/hour.

Overall statewide a catch rate of 1.63 fish/hour was estimated of which residents showed 1.60 fish/hour and nonresidents 1.93 fish/hour.

Harvest statewide during the "winter" season was 1,852,809 fish or 25.5% of the annual harvest (Table 46). Region 1 led the way with 536,847 fish taken while Region 7 had the least amount of 30,171. Salmonid streams provided the largest take statewide with 224,509 fish harvested. Undesignated stream management had the smallest harvest of 3,757 fish.

Table 45. Catch rates (fish/hour) by region by water type for the 1985 "winter" season of March '85 through April '85, October '85 through February '86
(Number of respondents in parenthesis)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	2.09 (135)	2.16 (106)	1.95 (29)
Salmonid Lake	2.51 (588)	2.38 (538)	3.89 (50)
Nonsalmonid Stream	0.00 (0)	0.00 (0)	0.00 (0)
Nonsalmonid Lake	3.90 (37)	3.90 (37)	0.00 (0)
Undesignated Stream	1.04 (5)	1.04 (5)	0.00 (0)
Undesignated Lake	1.46 (25)	1.46 (25)	0.00 (0)
TOTAL	2.46 (790)	2.38 (711)	3.18 (79)
REGION 2			
Salmonid Stream	1.76 (412)	1.53 (343)	2.72 (69)
Salmonid Lake	1.99 (134)	2.10 (126)	0.40 (8)
Nonsalmonid Stream	0.00 (0)	0.00 (0)	0.00 (0)
Nonsalmonid Lake	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Stream	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Lake	1.69 (4)	1.69 (4)	0.00 (0)
TOTAL	1.81 (550)	1.68 (473)	2.48 (77)
REGION 3			
Salmonid Stream	1.69 (631)	1.77 (530)	1.51 (101)
Salmonid Lake	1.58 (460)	1.66 (354)	1.29 (106)
Nonsalmonid Stream	0.00 (0)	0.00 (0)	0.00 (0)
Nonsalmonid Lake	0.00 (0)	0.00 (0)	0.00 (0)
Undesignated Stream	0.91 (3)	0.91 (3)	0.00 (0)
Undesignated Lake	0.00 (0)	0.00 (0)	0.00 (0)
TOTAL	1.64 (1,094)	1.72 (887)	1.40 (207)
REGION 4			
Salmonid Stream	1.75 (442)	1.72 (435)	3.15 (7)
Salmonid Lake	0.90 (436)	0.85 (421)	3.62 (15)
Nonsalmonid Stream	0.77 (33)	0.77 (33)	0.00 (0)
Nonsalmonid Lake	0.87 (16)	0.87 (16)	0.00 (0)
Undesignated Stream	11.11 (3)	0.00 (2)	33.33 (1)
Undesignated Lake	1.20 (15)	1.28 (14)	0.00 (0)
TOTAL	1.33 (945)	1.27 (921)	4.57 (24)

Table 45. Catch rates (fish/hour) by region by water type for the 1985 "winter" season of March '85 through April '85, October '85 through February '86 (continued)
(Number of respondents in parenthesis)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 5			
Salmonid Stream	1.18 (460)	1.17 (423)	1.26 (37)
Salmonid Lake	1.35 (168)	1.47 (148)	0.44 (20)
Nonsalmonid Stream	0.30 (21)	0.30 (21)	0.00 (0)
Nonsalmonid Lake	1.53 (3)	1.53 (3)	0.00 (0)
Undesignated Stream	0.59 (16)	0.63 (15)	0.00 (1)
Undesignated Lake	1.49 (5)	1.49 (5)	0.00 (0)
TOTAL	1.19 (673)	1.21 (615)	0.96 (58)
REGION 6			
Salmonid Stream	1.31 (22)	1.31 (22)	0.00 (0)
Salmonid Lake	2.01 (65)	2.01 (65)	0.00 (0)
Nonsalmonid Stream	0.72 (61)	0.86 (54)	0.10 (7)
Nonsalmonid Lake	0.63 (82)	0.63 (82)	0.00 (0)
Undesignated Stream	1.35 (4)	1.35 (4)	0.00 (0)
Undesignated Lake	1.56 (10)	1.56 (10)	0.00 (0)
TOTAL	1.13 (244)	1.18 (237)	0.10 (7)
REGION 7			
Salmonid Stream	0.22 (7)	0.40 (4)	0.07 (3)
Salmonid Lake	0.13 (2)	0.13 (2)	0.00 (0)
Nonsalmonid Stream	0.68 (70)	0.72 (61)	0.40 (9)
Nonsalmonid Lake	2.65 (25)	3.25 (17)	1.06 (8)
Undesignated Stream	1.50 (2)	1.50 (2)	0.00 (0)
Undesignated Lake	0.30 (3)	0.30 (3)	0.00 (0)
TOTAL	1.10 (109)	1.18 (89)	0.62 (20)
STATEWIDE			
Salmonid Stream	1.62 (2,109)	1.59 (1,863)	1.89 (246)
Salmonid Lake	1.74 (1,853)	1.72 (1,654)	2.00 (199)
Nonsalmonid Stream	0.67 (185)	0.72 (169)	0.27 (16)
Nonsalmonid Lake	1.72 (163)	1.74 (155)	1.06 (8)
Undesignated Stream	1.79 (33)	0.83 (31)	16.67 (2)
Undesignated Lake	1.37 (62)	1.40 (61)	0.00 (1)
TOTAL	1.63 (4,405)	1.60 (3,933)	1.93 (472)

Table 46. Harvest (number of fish) by region by water type for the "winter" season - March '85 through April '85, October '85 through February '86
(sample sizes same as for catch rates - Table 45)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 1			
Salmonid Stream	89,236	85,274	3,962
Salmonid Lake	379,180	365,616	13,564
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	50,234	50,234	0
Undesignated Stream	2,926	2,926	0
Undesignated Lake	15,271	15,271	0
TOTAL	536,847	519,321	17,526
REGION 2			
Salmonid Stream	111,868	99,719	12,149
Salmonid Lake	109,297	109,120	177
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	0	0	0
Undesignated Lake	1,444	1,444	0
TOTAL	222,609	210,283	12,326
REGION 3			
Salmonid Stream	163,219	159,202	4,017
Salmonid Lake	321,197	310,488	10,709
Nonsalmonid Stream	0	0	0
Nonsalmonid Lake	0	0	0
Undesignated Stream	1,490	1,490	0
Undesignated Lake	0	0	0
TOTAL	485,906	471,180	14,726
REGION 4			
Salmonid Stream	150,643	150,585	58
Salmonid Lake	158,278	157,902	376
Nonsalmonid Stream	5,695	5,695	0
Nonsalmonid Lake	5,106	5,106	0
Undesignated Stream	121	0	121
Undesignated Lake	7,500	7,500	0
TOTAL	327,343	326,788	555

Table 46. Harvest (number of fish) by region by water type for the "winter" season - March '85 through April '85, October '85 through February '86 (continued)
(sample sizes same as for catch rates - Table 45)

WATER TYPE	TOTAL	RESIDENT	NONRESIDENT
REGION 5			
Salmonid Stream	97,150	94,445	2,705
Salmonid Lake	39,376	34,882	4,494
Nonsalmonid Stream	1,540	1,540	0
Nonsalmonid Lake	286	286	0
Undesignated Stream	3,173	3,173	0
Undesignated Lake	61	61	0
TOTAL	141,586	134,387	7,199
REGION 6			
Salmonid Stream	5,946	5,946	0
Salmonid Lake	39,278	39,278	0
Nonsalmonid Stream	27,978	27,920	58
Nonsalmonid Lake	27,620	27,620	0
Undesignated Stream	5,474	5,474	0
Undesignated Lake	2,051	2,051	0
TOTAL	108,347	108,289	58
REGION 7			
Salmonid Stream	253	245	8
Salmonid Lake	219	219	0
Nonsalmonid Stream	8,078	7,817	261
Nonsalmonid Lake	18,359	18,229	130
Undesignated Stream	3,141	3,141	0
Undesignated Lake	121	121	0
TOTAL	30,171	29,772	399
STATEWIDE			
Salmonid Stream	618,315	595,416	22,899
Salmonid Lake	1,046,825	1,017,505	29,320
Nonsalmonid Stream	43,291	42,972	319
Nonsalmonid Lake	101,605	101,475	130
Undesignated Stream	16,325	16,204	121
Undesignated Lake	26,448	26,448	0
TOTAL	1,852,809	1,800,020	52,789

DISCUSSION

SCOPE OF ANGLING PRESSURE

Statewide angling pressure surveys were conducted annually from May, 1982 through February, 1986. Estimates of pressure by residents and nonresidents were for licensed anglers only. In 1982 and 1983 this would encompass anglers 15 years of age and older. For 1984 and 1985 this would include anglers 12 years of age and older. Spence (1971) found that the unlicensed angler (ages 2- 14) comprised 9% of the pressure on Rock Creek near Missoula. Peterson (1970) found that the unlicensed angler accounted for 21% and 19% of the total number of anglers on Big Spring Creek near Lewistown during 1968 and 1969 respectively. On the Bighorn River near Hardin, Stevenson (1975) found that the unlicensed angler accounted for 14.2% and 15.8% of the total number of anglers during 1972 and 1973 respectively. Fredenberg (1984) found that 10% of the anglers on Bighorn Lake and 13% of the anglers on the Yellowtail Afterbay were unlicensed. The 1975 National Fishing and Hunting Survey showed that 23.8% of the anglers nationwide were between the ages of 9 and 17. It appears that the unlicensed angler makes up between 9% to 21% of the fishing pressure depending on the type of water being fished.

Some angling pressure was obtained on Indian reservations and National Parks within Montana. This pressure was incidental to other fishing trips and only included those anglers that had purchased a Montana fishing license. Since national parks and reservations require different licensing, a complete pressure estimate of waters within those regions was not obtained.

RANDOMNESS OF SAMPLE

Drawing a random sample is essential in any survey of this nature to obtain unbiased results. When dealing with over 250,000 licenses to sample from on twice-a-month or monthly basis, this becomes a monumental task.

Samples were drawn by hand for all four years in a systematic random fashion (see Main Report for a detailed description). To assess the validity of this sampling method, the regional distribution of the entire yearly sample throughout the state was compared to the annual regional license sales for the state. This was done since regional distribution of license sales by sampling period was not attainable. License sales are conducted by dealers from all areas of the state. The dealer is required to remit all licenses sold by the 10th of the following month. If a dealer fails to remit the licenses he sold, it will affect the sample pulled and thus the results of the survey. The affect is directly related to the number of licenses not remitted.

The only year when data was kept on regional distribution of the samples was 1985. Cumulative license sales were recorded for each FWP region (Table 47). These numbers were then compared to the sample drawn for the same region using a Chi-square test (Snedecor & Cochran, 1971).

The combined samples sizes from region to region throughout the year were significantly different from the combined regional licenses sales throughout the year. This could be the result of one of three factors: one - the samples being drawn were not random and thus not representative of the population; two - the remittance of licenses from the dealers was not timely enough and the sample drawn represents that population of licensees that were remitted; or three - the samples drawn were on a stratified basis throughout the year and were combined for comparison purposes to the annual license sales by region. This summation could mask the true stratified distribution and thus produce a invalid test statistic.

Table 47. License sales and total sample size for 1985 by FWP region

REGION	LICENSE SALES	SAMPLE SIZE	
1	32,773	5,532	
2	32,841	5,644	
3	38,092	6,868	
4	41,250	7,713	
5	34,059	6,930	
6	10,170	2,146	Chi-sqr = 169.4
7	11,489	2,329	P-value < 0.005

To more accurately assess which is correct, records should be kept on future surveys to track sample size by wave and by region for the entire season. The effect this bias, if any, has will be on pressure between regions and waters within the regions. This bias will have little or no affect on statewide estimates.

ACCURACY

SAMPLING

Samples were drawn and questionnaires sent to the selected anglers as soon as possible. This was usually 15-20 days after the wave being sampled had ended (see discussion under Methods for details). In 1984 the samples were pulled and questionnaires sent 1-2 days after the wave being sampled had ended. Since license dealers are not required to remit copies of licenses sold until the 10th of the following month, the samples did not contain all anglers who had purchased a license during the period being sampled. This is reflected in the fact that 1984 produced the lowest overall statewide angling pressure estimate (2,197,402 angler days). This situation was corrected for 1985 and resulted in a 11.2% increase in overall angling pressure. The months of May through October were the most affected by this sampling scheme.

The months of March and April 1984 overlapped with the 1983 license year due to a legislative change in the license year. These months contained a large enough sampling pool so they could be sampled independenly for each survey year. Once through October the sampling

pool was again large enough to minimize the impact of the reduced number of licenses. Also, license sales naturally curtail after September. This increased the reliability later in the year since the pool of anglers to be sampled is no longer rapidly expanding.

In 1982 no reminder was sent to the two-day nonresident license holder due to fiscal restraints. This had little or no affect on the pressure since there was no significant difference in number of respondents fishing between initial and remail for nonresidents in 1984 and 1985 (1984 t=-0.122 P=0.904; 1985 t=1.461 P=0.163).

Beginning in 1984 the sampling period changed from monthly to twice a month to help alleviate memory bias. Since fiscal constraints did not allow a doubling in sample size this effectively cut the sample in half. This is depicted in the number of waters on which estimates were made for each of the years: 1982 - 1408, 1983 - 1206, 1984 - 1135, 1985 - 1157 and by the number of trips reported for each year: 1982 - 20,230, 1983 - 16,863, 1984 - 8,779, 1985 - 17,379. In 1985 the number of questionnaires was doubled to bring the sampling level back to that used in 1982 and 1983.

CATCH RATES AND HARVEST

Catch rate and harvest information were estimated for individual waters beginning in 1984 and continued in 1985. Questions were included in the survey to ascertain from the angler the number of hours fished, the number of trout/salmon caught and kept, and the number of other sport species caught and kept.

Catch Rates. The catch rates estimated from the statewide angling survey were higher than those reported in on-site creel censuses for stream fisheries (Table 48). This was probably a result of a combination of reasons. One - the angler underestimating the hours fished; two - the angler overestimating the number of fish caught do to memory bias; three - the statewide stream fisheries survey asked the angler to include whitefish and generally they weren't incorporated in many creel census catch rates; and four - Lyden (1973) reported higher catch rates for voluntary creel card returns over personal interviews.

The lake fisheries catch rates estimated from the statewide angling survey were fairly close to those reported from on site creel censuses. The exception was Flathead Lake where the statewide survey estimated catch rate was 1.98 for the license year of 1985 compared to catch rates between 0.426 and 0.907 for the summer of 1985 (depending on the area of the lake fished) as reported by Hanzel (1986). Since the two surveys do not coincide exactly no conclusion can be drawn as to the accuracy of the mail survey. Lake Mary Ronan showed a similar discrepancy but due to the surveys being done 5 years apart this may be real.

Overall statewide catch rates (1.34 fish/hour in 1984 and 1.54

Table 48. Comparison of catch rates (fish/hour) between the statewide angling survey and on-site creel census for selected waters

Water	Period	Creel Census Catch Rate[2/]	Survey Catch Rate (sample size) 1984	1985
Alva Lake	8/71	1.10	4.95	1.04
(Marcoux, 1973)			(9)	(21)
Big Hole R.	5/77 - 9/77	0.41 - 0.66	1.07	1.80
	5/78 - 9/78	0.38 - 0.73	(113)	(165)
(Kozakiewicz, 1979)				
Bighorn R.	4/73 - 7/73	0.30 - 0.71	2.15	1.28
(Stevenson, 1975)			(108)	(418)
	10/82-9/83	0.42 - 0.71		
(Fredenberg, 1985)				
Big Spring Cr	5/68 - 9/68	0.31 - 1.24	1.36	1.11
	5/69 - 9/69	0.43 - 0.92	(46)	(32)
(Peterson, 1970)				
Flathead Lk.	6/85 - 9/85	0.43 - 0.91	1.17	1.98
(Hanzel, 1986)			(277)	(481)
Flathead R.	5/75 - 4/76	0.16 - 1.99	0.73	0.84
(Hanzel, 1977)			(67)	(87)
	5/81 - 11/81	0.07 - 1.15		
(Fredenberg & Graham, 1982				
Gallatin R.	5/71 - 9/71	0.43 - 0.63	1.08	2.15
	5/72 - 9/72	0.46 - 0.72	(243)	(575)
(Lyden, 1973)				
Hyalite Res.	6/81 - 9/81	0.28	0.51	0.70
	6/82 - 9/82	0.23	(17)	(20)
(Zubik, 1983)				
Inez Lake	8/71	1.70	0.00	1.31
(Marcoux, 1973)			(1)	(14)
L. Mary Ronan	5/68 - 11/69	0.22	0.99	2.49
(Domrose, 1970)			(120)	(184)
Lake Koocanusa	5/85 - 10/85	1.15	1.03	1.96
(Chisholm & Hamlin, 1987)			(153)	(1310)
Madison R.	5/66 - 9/66	0.54 - 1.00	1.37	1.71
	5/67 - 9/67	0.53 - 0.90	(722)	(1241)
(Vincent, 1969)				
M.F. Flathead R	5/75 - 4/76	0.32 - 0.58	0.53	0.73
(Hanzel, 1977)			(5)	(32)
	9/81 - 11/81	1.90		
(Fredenberg & Graham, 1982)				
N.F. Flathead R	5/75 - 4/76	0.24 - 0.74	1.93	1.38
(Hanzel, 1977)			(15)	(46)

Table 48. Comparison of catch rates (fish/hour) between the statewide angling survey and on-site creel census for selected waters (continued)

Water	Period	Creel Census Catch Rate[2/]	Survey Catch Rate (sample size) 1984	1985
Rock Cr.	5/58 - 11/58	0.89	1.29	2.24
	5/59 - 11/59	0.91	(116)	(184)
	5/60 - 11/60	0.89		
	5/61 - 11/61	0.69		
	5/62 - 11/62	0.65		
	5/63 - 11/63	0.61		
	5/64 - 11/64	0.60		
	5/65 - 11/65	0.67		
	5/66 - 11/66	0.63		
	5/67 - 11/67	0.72		
(Spence, 1971)				
	5/72 - 11/72	0.45		
(Marcoux, 1974)				
Swan Lk.	5/83 - 5/84	0.21 - 1.68	0.77	0.49
(Leathe & Enk, 1985)			(31)	(39)
Swan R.	5/83 - 11/83	0.046 - 0.33	1.60	1.50
(Leathe & Enk, 1985)			(22)	(37)
Yellowstone R	3/82 - 9/82	0.64	1.06	1.76
(Javorsky, 1984)			(113)	(246)
Yellowtail Aftby	4/82 - 3/83	0.37	0.42	0.39
(Fredenberg, 1984)			(19)	(21)

[2/] Catch rate by stratum and/or river section.

fish/hour in 1985) appear high when compared to on-site creel census, however, they compare favorably with rates reported from the Department's Fisherman Log program for 1984 and 1985 -- 1.7 fish/hour for each year. Log catch rates are calculated from a diary kept by individual anglers. Logs are issued upon request and represent all types of waters and all parts of the state. The log catch rates would expectantly be higher since it is generally the more avid angler that keeps a log and sends it for the capturing of the data.

Harvest. The harvest estimates for streams were divided by the number of miles and then by the number of days of census for both on-site creel census and the statewide angling survey estimates (Table 49). In this way a comparable number could be used in equating the two harvest statistics. On the statewide survey for streams, the length in days was calculated for the time that a particular water was open to fishing.

The Harvest rates (fish/mile/day) were comparable between the statewide angling survey and on-site creel census for the Big Hole River and Bighorn River. The statewide survey showed lower harvest rates for the upper Flathead River and the Middle Fork Flathead River. For the Swan River and Yellowstone River, the statewide survey showed higher harvest rates than the on-site creel census.

Table 49. Comparison of harvest rates (fish/mile/day) between the statewide angling survey and on site creel census for selected rivers

Water	Period	Creel Census Harvest (fish/mile/day)	Survey Harvest (sample size) 1984	1985
Big Hole R.	5/77 - 9/77	3.696	2.902	2.514
	5/78 - 9/78	2.554	(288)	(315)
(Kozakiewicz, 1979)				
Bighorn R.	10/82 - 9/83	1.705	1.691	1.881
(Fredenberg, 1985)			(154)	(457)
Flathead R.	5/81 - 11/81	8.112	2.797	2.027
(Fredenberg & Graham, 1982)			(67)	(87)
M.F. Flathead R	9/81 - 11/81	23.892	0.305	1.508
(Fredenberg & Graham, 1982)			(5)	(32)
Swan R.	5/83 - 11/83	0.389	1.066	1.758
(Leathe & Enk, 1985)			(22)	(37)
Yellowstone R	3/82 - 9/82	0.977	5.121	2.771
(Javorsky, 1984)			(113)	(246)

Some differences in harvest rates may be due to the difference in the year of census. In the Middle Fork Flathead creel census, the harvest rate was for spawning kokanee which would be expectedly higher than the annual harvest rate. On the Yellowstone, Javorsky (1984) did not report the whitefish harvest which may account for some of the discrepancy.

For lakes, the harvest was divided by the number of days of census (Table 50). Since all surveys included the entire body of water there was no need to break the estimates down by acre. The length of survey for the statewide angling estimates were all assumed to encompass 240 days for the lakes or reservoirs. This was selected to allow for ice up in the winter and thawing in the spring. The harvest rates for Lake Mary Ronan were based upon the season length set in the regulations of the third Saturday in May through March 15th of the following year.

The harvest rate (fish/day) for lakes and reservoirs was comparable between the statewide angling survey and on-site creel census for Flathead Lake, Lake Mary Ronan, Swan Lake and Yellowtail Afterbay.

In Hyalite Reservoir, the statewide harvest was less than that found by Zubik (1983). This difference may be attributable to the difference in years that estimates of harvest were made.

For Lake Koocanusa the statewide harvest rate was higher than that shown by Chisholm and Hamlin (1987). Considering the variability

Table 50. Comparison of harvest rates (fish/day) between the statewide angling survey and on-site creel census for selected lakes

Water	Period	Creel Census Harvest (fish/day)	Survey Harvest (sample size) 1984	1985
Flathead Lk. (Hanzel, 1986)	6/85 - 9/85	1,613.2	1,024.0 (277)	1,469.4 (481)
Hyalite Res. (Zubik, 1983)	6/81 - 9/81	61.25	26.84 (17)	27.92 (20)
	6/82 - 9/82	42.90		
L. Mary Ronan (Domrose, 1986)	1/86 - 3/86	245.1	248.16 (120)	294.59 (184)
Lake Koocanusa (Chisholm & Hamlin, 1987)	5/85 - 10/85	3,695.2	754.2 (153)	4,797.9 (1,310)
Swan Lk. (Leathe & Enk, 1985)	5/83 - 5/84	46.51	32.76 (31)	41.06 (39)
Yellowtail Aftby (Fredenberg, 1984)	4/82 - 3/83	14.56	17.43 (19)	8.49 (21)

between years on Lake Koocanusa (754 to 4,797) this does not appear out of line.

Without an estimation of the variation associated with all the estimates there is no way of telling if the differences shown in harvest rates for streams and lakes are real. In future surveys variances should be calculated so more meaningful comparisons can be made.

PRESSURE

For comparison purposes the angling pressure was converted into angler days per mile per day (Table 51 and Table 52). Javorsky (1984) conducted a creel census on the upper Yellowstone River in 1982 but made no estimate of angler days. The Yellowstone River figures in Tables 8 and 9 were calculated by taking the total hours of angling pressure and dividing it by the average length of completed trip.

No significant difference was found (chi-square = 3.819 P-value = 0.70) for rivers between the creel census and the statewide estimates. This assumes the creel census are the actual numbers and the statewide estimates are the expected.

The statewide survey pressure estimates for the Big Hole River appear too low. These calculations were based upon 365 or 366 days in the season since there is an extended whitefish season. If the estimates were based upon the normal season (193 to 197 days) the number of angler days per mile per day would then become 5.169 for 1982, 5.172 for 1983, 5.840 for 1984, and 4.913 for 1985. This would place them right in-line with what Kozakiewicz found in 1977.

The statewide survey estimates for the Bighorn River are lower than that found by Fredenberg (1985) in 1982 and 1983. In this same report he estimated the total pressure for the upper 40 miles of the Bighorn River to be between 1.3699 and 1.7123 angler days/mile/day. This would compare favorably with that found in the statewide survey.

Fredenberg also found a decrease in pressure on the Bighorn River during the summer and fall of 1984. The summer of 1984 was considered a drought year and the publicity may have affected the nonresident pressure. The ever lower mail fishing pressure estimate for 1984 has in some part to do with the sampling procedure, but the extent of this bias can't be accurately determined due to other circumstances.

The upper Flathead River was estimated to have 3.266 angler days/mile/day by Fredenberg during the 1981 fishing season. This was higher than any estimate from the statewide survey. No conclusions can be drawn since the estimates were made for different years. Without calculating variances one can't tell if the difference is real. The Middle Fork Flathead River was estimated to have a pressure of 2.557 angler days/mile/day for the kokanee spawning run of 1981. This short season of 80 days provides the bulk of the pressure on the Middle Fork (Fredenberg and Graham, 1982). This would then account for some of the reason that the on-site creel census was much higher than those found in the statewide survey.

The Swan River estimates compare favorably, especially when the same year of census are equated. The difference (0.0652) is within 12% of the estimate.

When comparing the same year and same section on the Yellowstone River the two estimates are less than 3% apart.

Table 51. Comparison of angling pressure (pressure/mile/day) between the statewide angling survey and on-site creel census for selected rivers for 1982 and 1983

Water	Period	Creel Census	Statewide survey 1982 (sample size)	Statewide survey 1983 (sample size)
Big Hole R. (Kozakiewicz, 1979)	5/77 - 9/77	5.020	1.2315 (417)	1.2386 (383)
	5/78 - 9/78	3.708		
Bighorn R. (Fredenberg, 1985)	10/82 - 9/83	2.703	1.4319 (283)	1.3797 (342)
Flathead R. (Fredenberg & Graham, 1982)	5/81 - 11/81	3.266	2.4040 (167)	2.7426 (172)
M.F. Flathead R (Fredenberg & Graham, 1982)	9/81 - 11/81	2.557	0.7486 (28)	0.1713 (17)
Swan R. (Leathe & Enk, 1985)	5/83 - 11/83	0.4671	0.6623 (61)	0.5333 (47)
Yellowstone R (Javorsky, 1984)	3/82 - 9/82	2.2587	2.3227 (285)	1.6764 (227)

All lake and reservoir pressure data was converted into angler days per season length in days (240 days - see Harvest) for consistency and comparison purposes (Tables 53 and 54). On Hyalite Reservoir, Zubik (1983) did not estimate pressure in angler days. To make the data comparable, his estimate of pressure in hours was divided by the length of completed trip to obtain an estimate of angler days.

The statewide estimates under-estimated pressure on Flathead Lake, Hyalite Reservoir, and Lake Koocanusa when comparing the nearest or same year of census. It over-estimated pressure on Lake Mary Ronan, Swan Lake and Yellowtail Afterbay.

Table 52. Comparison of angling pressure (pressure/mile/day) between the statewide angling survey and on-site creel census for selected rivers for 1984 and 1985

Water	Period	Creel Census	Statewide Survey (sample size) 1984	1985
Big Hole R.	5/77 - 9/77	5.020	1.4129	1.2020
	5/78 - 9/78	3.708	(291)	(319)
(Kozakiewicz, 1979)				
Bighorn R.	10/82 - 9/83	2.703	1.0607	1.4616
(Fredenberg, 1985)			(154)	(460)
Flathead R.	5/81 - 11/81	3.266	1.6342	1.4009
(Fredenberg & Graham, 1982)			(67)	(87)
M.F. Flathead R	9/81 - 11/81	2.557	0.2792	0.6492
(Fredenberg & Graham, 1982)			(6)	(32)
Swan R.	5/83 - 11/83	0.4671	0.6154	0.6727
(Leathe & Enk, 1985)			(22)	(37)
Yellowstone R	3/82 - 9/82	2.2587	1.3950	2.0561
(Javorsky, 1984)			(125)	(248)

In 1982 and 1983 coding of questionnaires was done by work study or contract help. This presented some problems on waters such as Bighorn Lake (commonly called Yellowtail Reservoir) where it would be coded as Yellowtail Afterbay. This was corrected for 1984 and 1985 and can be seen in the estimates being more akin to that found by Fredenberg (1984), 10.07 & 6.22 vs 9.164 respectively.

Using (angler days)/(days of census) may not be the best statistic for comparison and could account for the discrepancies shown. This can be shown when looking at Swan Lake. Leathe and Enk showed the pressure to be 7,093 angler days. This was for an entire year of 5/21/83 to 5/18/84. The statewide estimate for that same period (5/01/83 - 4/30/84) was 7,022 angler days. Assuming a variation for the estimate by Leathe and Enk to be comparable to that found on the statewide survey the difference is not significant (t-test = 0.03, p-value > .50). A better statistic would be to determine the angling season length (i.e. account for freeze-up, spring thaw and intensity of ice fisheries) as was done in harvest calculations for each reservoir or lake compared and use this number when determining the pressure per day.

Table 53. Comparison of angler pressure (pressure/day) between the statewide angling survey and on-site creel census for selected lakes for 1982 and 1983

Water	Period	Creel Census	Statewide Survey (sample size) 1982	1983
Flathead Lk. (Hanzel, 1986)	6/85 - 9/85	641.6	383.1 (675)	431.2 (604)
Hyalite Res. (Zubik, 1983)	6/81 - 9/81	68.89	44.90 (78)	28.05 (45)
	6/82 - 9/82	59.33		
L. Mary Ronan (Domrose, 1986)	1/86 - 3/86	50.02	52.76 (118)	74.82 (221)
Lake Koocanusa (Chisholm & Hamlin, 1987)	5/85 - 10/85	559.9	146.9 (251)	143.0 (226)
Swan Lk. (Leathe & Enk, 1985)	5/83 - 5/84	19.49	25.13 (50)	29.26 (60)
Yellowtail Aftby (Fredenberg, 1984)	4/82 - 3/83	9.164	48.98 (110)	49.51 (105)

Chisholm and Hamlin (1987) felt the statewide survey agreed closely with the results they found for Lake Koocanusa when compared on an annual basis. The descrepancy shown in Table 53 for this water arises because their survey was for the peak fishing period, while the statewide was year round. Hanzel (1986) estimated the total annual pressure on Flathead Lake for 1985 to be 73,425 angler days. The statewide estimate of pressure for this same period was 75,964. Assuming a variation from the creel census equal to that of the statewide survey, there is no significant difference in the two estimates ($t=0.28$, p-value > 0.50). Where the same time period can be matched the results of the statewide angling survey agree closely with lake and reservoir creel censuses.

RETURN RATES

Return rates (# of respondents / [# of surveys sent - nondeliverables] * 100) were calculated for every wave and year the survey was conducted (Table 55). The average return rates for residents and nonresidents for 1982 were 74.84% (s.d. = 5.09) and 83.5% (s.d. = 7.37) respectively. In 1983 the average decreased to 67.98% (s.d. = 6.96) for residents and 78.39% (s.d. = 5.48) for nonresidents. This difference was not significant for residents ($t=0.796$, p-value = 0.43) nor nonresidents ($t=0.595$, p-value > 0.50). In 1984 the average return rate for residents was 61.71% (s.d.=4.86) and for nonresidents 71.79% (s.d.=9.10). This was again a decrease from the previous two years.

Table 54. Comparison of angling pressure (pressure/day) between the statewide angling survey and on-site creel census for selected lakes for 1984 and 1985

Water	Period	Creel Census	Statewide Survey (sample size) 1984	1985
Flathead Lk. (Hanzel, 1986)	6/85 - 9/85	641.6	323.9 (278)	316.5 (482)
Hyalite Res. (Zubik, 1983)	6/81 - 9/81	68.89	19.84 (17)	18.68 (25)
	6/82 - 9/82	59.33		
L. Mary Ronan (Domrose, 1986)	1/86 - 3/86	50.02	66.69 (122)	60.92 (185)
Lake Koocanusa (Chisholm & Hamlin, 1987)	5/85 - 10/85	559.9	166.4 (156)	476.0 (1,325)
Swan Lk. (Leathe & Enk, 1985)	5/83 - 5/84	19.49	20.78 (31)	31.75 (44)
Yellowtail Aftby (Fredenberg, 1984)	4/82 - 3/83	9.164	15.31 (19)	9.47 (21)

Although the difference was not significant from the 1982 level for residents (t=1.866, p-value=0.073) and nonresidents (t=1.03, p-value=0.30) it is nearing the significance level for residents. This decrease is probably attributable to the added questions included on the survey for this year. In 1985, the survey was sent out by bulk rate rather than first class mail. This is reflected in the significant drop in return rates for residents (1983 vs 1985 - t=2.65, p-value=0.014; 1984 vs 1985 - t=2.73, p-value=0.01). Nonresidents did not show a significant difference in return rates between 1985 and any of the preceding years (1982 vs 1985, t=1.985, p-value=0.06; 1983 vs 1985, t=1.665, p-value=0.11; 1984 vs 1985, t=0.801, p-value=0.40). The return rate for nonresidents does show a steady decrease from year to year, probably reflecting the addition of questions asked and mailing out by bulk rate. Future studies should consider using first class postage for mailings since mailing bulk rate caused the only significant drop in return rates for residents.

The rate of nonresidents returning their surveys is consistently higher than residents. This is probably do to a higher degree of interest and a more willingness to participate.

Table 55. Return rates by residency for the 1982 through 1985 statewide angling pressure surveys

	1982		1983		1984		1985	
WAVE	RES	NRES	RES	NRES	RES	NRES	RES	NRES
1	69.1	73.0	----	----	62.1	75.9	48.6	56.1
2	71.5	75.5	59.3	82.6	66.4	70.0	47.8	59.5
3	70.9	84.5			54.1	67.2	47.7	52.5
4	73.7	84.3			64.8	78.0	50.2	47.8
5	73.4	96.8			61.9	58.3	42.0	57.9
6	87.8	89.4	66.8	76.6	60.5	69.6	46.5	68.7
7	77.2	85.9	73.7	84.9	63.9	72.7	49.0	69.0
8	76.7	80.8	71.0	85.5	65.2	65.5	46.3	57.1
9	76.3	88.5	75.4	81.3	62.3	67.3	45.2	62.0
10	75.8	89.4	76.3	79.0	64.7	59.0	45.1	69.8
11	70.8	74.3	71.9	80.7	59.6	89.5	44.4	76.0
12			73.9	79.0	61.9	74.6	45.1	62.6
13	----	----	----	----	63.6	78.0	47.5	71.1
14			62.1	75.9	62.2	64.1	37.0	51.2
15			66.4	70.0	51.4	69.5	43.8	55.3
16			54.1	67.2	74.2	90.8	45.1	71.4
17			64.8	78.0	58.9	60.0	37.9	65.9
18					60.0	80.2		
19					54.7	73.8		

The percent of residents and nonresidents who said they fished were compared between initial and remail mailings to determine if a significant difference occurred (Table 56). A paired t-test (Snedecor & Cochran, 1971) was used. The residents for both years showed a significant difference in percent fishing (1984 - t=4.581, p-value= 0.00023; 1985 - t=4.255, p-value=0.00060). The percent fishing was consistently higher for the initial mailing. This may represent a bias in the survey if those anglers still not responding had a different percentage of fishing then the combined (initial and remail) rate. If they did differ, it would indicate the statewide survey is over-estimating the pressure.

The nonresidents showed no significant difference in percent fishing between initial and remail mailings for both 1984 and 1985 (1984 - t=-0.122, p-value=0.90439, 1985 - t=1.461, p-value=0.16318).

In future surveys a follow-up survey should be done on resident anglers still not responding to see if their percent fishing response is different than those already received.

NUMBER OF LICENSED ANGLERS VS PRESSURE

The number of fishing licenses sold and thus the number of anglers from 1982 to 1985 has been static to decreasing (Table 57). The number

Table 56. Percent of resident and nonresident respondents fishing during the 1984 and 1985 seasons sorted by initial and remail mailings and wave

Wave	1984 Initial Res	1984 Initial Nres	1984 Remail Res	1984 Remail Nres	1985 Initial Res	1985 Initial Nres	1985 Remail Res	1985 Remail Nres
1	10.5	2.9	8.8	0.0	31.0	47.5	28.0	57.1
2	8.8	11.4	6.8	14.3	37.8	57.4	29.7	51.3
3	15.2	19.4	14.3	0.0	47.8	68.4	39.1	60.4
4	19.3	8.6	6.0	18.2	46.1	46.8	30.1	35.3
5	58.5	55.1	37.2	72.2	44.6	52.9	30.7	54.5
6	41.2	29.0	32.8	37.5	36.2	31.7	33.1	36.7
7	45.2	35.5	28.0	33.3	32.7	50.8	24.5	30.0
8	45.0	32.0	40.4	36.4	32.6	36.7	27.9	47.8
9	37.0	31.8	28.1	46.7	35.1	32.1	16.6	15.8
10	34.2	30.8	36.1	60.0	19.0	12.7	15.6	12.0
11	32.9	27.3	21.5	11.1	16.6	9.5	17.5	6.3
12	27.4	27.5	17.2	0.0	12.8	11.9	11.8	11.1
13	19.1	12.1	10.0	15.4	11.5	5.3	10.0	0.0
14	14.7	5.9	8.4	0.0	10.0	2.6	6.7	4.1
15	11.2	9.4	11.2	0.0	11.9	4.9	10.9	0.0
16	7.8	7.2	8.2	5.0	14.8	7.7	6.0	0.0
17	9.5	5.0	10.2	6.7	11.1	0.9	11.7	5.8
18	14.0	6.2	6.6	10.0				
19	14.8	2.7	7.8	0.0				

of resident licenses sold is equal to the number of resident anglers. For nonresidents, they are not equal because the department sells a

Table 57. Number licenses sold and number of anglers in Montana by residency for 1982 to 1985

License Year	Licenses sold Residents	Licenses sold Nonresidents	Number of Anglers Residents	Number of Anglers Nonresidents
1982	184,656	206,716	184,656	118,438
1983	187,524	205,500	187,524	113,425
1984	184,398	172,751	184,398	106,266
1985	184,913	178,355	184,913	106,201

2-day permit which can be purchased in any quantity. The average nonresident purchased 2.088 stamps in 1983.

There was no correlation between pressure and license sales for either residents or nonresidents (residents - r=0.52677; nonresidents - r=0.812382). To be significant at the 95% level a correlation

coefficient (r) of at least 0.878 would have to be obtained. When comparing number of anglers and pressure the correlation for residents was the same as license sales. For nonresidents the correlation coefficient decreased to 0.781107, again showing no relationship between pressure and number of licensed anglers on a statewide basis.

CONCLUSIONS AND RECOMMENDATIONS

The statewide angling pressure estimates are fairly representative of the actual pressure occurring on each stream. This is borne out by comparing similar time period on-site creel censuses and finding no significant difference. The number of comparisons was small and on waters where there was a fair amount of pressure. On those waters where the pressure was light (less than 10 trips reported), the results of the statewide survey have not been validated and should be used with caution.

The catch rates and harvest follow those found in on-site studies realizing the number presented are totals for all fish species. Overall the catch rates are too high when compared with those done for trout only, but fall in-line with those found in the Fisherman Log program.

Future studies should incorporate a better system of randomly selecting the anglers to be sampled. Keying all the fishing license data and selecting the wave samples by computer would produce a better random sample.

Follow-up surveys should be conducted in future sampling to assess the "yes I fished" response rates for residents. A lower response by anglers who did not fish compared to those who did may be biasing the estimates of pressure, harvest and catch rates upward.

All future surveys should use first class postage for the mailings. This will help assure a higher response rate from both residents and nonresidents.

When practical, on-site creel censuses should be conducted during the same time period to help in assessing the reliability of the statewide survey. This would be particularly useful if a cross section of waters from around the state could be creeled over a span of years.

The statewide survey should be funded to operate annually. This would help in running a consistent and accurate survey. The results would be comparable from year to year. It would help in assessing potential problem waters that may go undetected from sporadic surveys. An annual survey would benefit following a species such as kokanee that are cyclic in their population numbers. Also, it may be possible to combine several years data for individual lightly fished waters to achieve more reliable estimates.

The questionnaire form should be evaluated and all unnecessary questions removed. This will help increase return rates.

A method to more accurately track the number of questionnaires sent for each FWP region needs to be developed. If the dealer number was included in the keying of licenses this would provide an easy way to assign a region to each response. The sampling method used should be tested to see if the proportion of questionnaires by region is equal to the number of licenses sold by region.

LITERATURE CITED

Bishop, Clinton G. 1959. Statewide creel census, census of fisherman's creel. Job completion Rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-4-R-8, Job III. 9 pp.

_____. 1960. Statewide creel census, census of fisherman's creel. Job completion Rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-4-R-9, Job III. 9 pp.

_____. 1961. Statewide creel census, census of fisherman's creel. Job completion Rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-4-R-10, Job III. 11 pp.

Chisholm, Ian and Paul Hamlin. 1987. 1985 Libby Reservoir angler census: May 13 - October 31, 1985. B.P.A. interim report. Project No. 83-467. Mt. Dept. of Fish, Wildlife and Parks, Kalispell, Mt., 108 pp.

Domrose, Robert J. 1970. Northwest Montana fisheries study, Lake Mary Ronan summer creel census. Job Prog. Rept. Fed. Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-7-R-18, Job 3, 11 pp.

_____. 1986. Northwest Montana fisheries study, inventory of waters of the project area. Job Prog. Rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-7-R-35, Job I-a, 21 pp.

Fredenberg, Wade and Patrick Graham. 1982. Census of kokanee fishermen on the Flathead River. Contract report. Mont. Dept. of Fish, Wild. & Parks, Kalispell, Mt. 35 pp.

Fredenberg, Wade. 1984. South Central Montana fisheries investigations, Bighorn Lake and Bighorn River post-impoundment study. Job completion Rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-20-R-27, Job IV-a. 46 pp.

_____. 1985. Bighorn River Creel Census, March, 1982 - October, 1983. Mt. Dept. of Fish, Wildlife and Parks, Billings, Mt., 56 pp.

Gaffney, John J. 1975. Unpublished data. Montana Department of Fish, Wildlife and Parks. Bozeman, Mt.

_____. 1982. Fishery management support services, inventory of resource status and fishing opportunity. Job Prog. rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-4-R-31, Job I-c, 8 pp.

Hanzel, Delano A. 1977. Angler pressure and game fish harvest estimates for 1975 in the Flathead River system above Flathead Lake. Job Prog. Rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-7-R, 23 pp.

_____. 1986. Lake fisheries inventory, seasonal area and depth distribution of cutthroat, bull trout (Dolly Varden) and lake trout in Flathead Lake. Job Prog. Rept. Fed. Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-33-R-20, Job I-a, 25 pp.

Holton, George D. 1970. Statewide creel census and statistical services, statewide creel census. Job Prog. Rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-4-R-18, Job I. 16 pp.

_____. 1971. Statewide creel census and statistical services, statewide creel census. Job Prog. Rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-4-R-19, Job I-a. 3 pp.

_____. 1974. Statewide creel census and statistical services, statewide creel census. Job Prog. Rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-4-R-22, Job I-a. 2 pp.

_____. 1974. Statewide creel census and statistical services, statewide creel census. Job Prog. Rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-4-R-23, Job I-a. 3 pp.

Javorsky, Larry D. 1984. The trout fishery on a reach of the upper Yellowstone River, Montana, during 1982. M.S. thesis, Mont. State Univ., Bozeman, 45 pp.

Kozakiewicz, V. J. 1979. The trout fishery of the lower Big Hole River, Montana, during 1977 and 1978. M.S. thesis, Mont. State Univ., 74 pp.

Leathe, Stephan A. and Michael D. Enk. 1985. Cumulative effects of micro-hydro development on the fisheries of the Swan River drainage, Montana. Final report. B.P.A. contract Project 82-19. Mont. Dept of Fish, Wildl & Parks, Kalispell, Mt. Vol. I 132 pp., Vol. II 106 pp.

Lyden, R. S., Jr. 1973. Fishermen use and fish harvest on the West Gallatin River, Montana. M.S. thesis, Mont. State Univ., 34 pp.

Marcoux, Ronald G. 1973. Western Montana Fishery study, inventory of waters of the project area. Job Prog. Rept. Fed. Aid in Fish and Wild. Rest. Acts, Prog. Rept. F-12-R-18, Job I-a, 27 pp.

_____. 1974. Western Montana fishery investigation, fish management surveys - Rock Creek creel census and Upper Clark Fork fish population study. Job Prog. Rept. Fed. Aid in Fish and Wild. Rest. Acts, Prog. Rept. F-12-R-19, Job I-b, 15 pp.

Peterson, Norman W. 1970. The yield of wild and hatchery trout from Big Spring Creek, Montana. M.S. thesis, Mont. State Univ., 35 pp.

Snedecor, George W. and William G. Cochran. 1971. Statistical Methods, sixth edition. Iowa State University Press. Ames, Iowa. 593 pp.

Spence, Liter. 1971. Rock Creek creel census, summer census Final report. Job Prog. Rept. Fed. Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-27-R, Job I, 64 pp.

Stevenson, H. R. 1975. The trout fishery of the Bighorn River below Yellowtail Dam, Montana. M.S. thesis, Mont. State Univ., 67 pp.

U. S. Fish and Wildlife Service. 1977. 1975 national survey of hunting, fishing and wildlife-associated recreation. U. S. Dept. of Interior, Washington D. C., 99 pp.

Vincent, E. Richard. 1969. Southwest Montana fishery study, Madison River creel census. Job Prog. Rept. Fed. Aid in Fish and Wild. Rest. Acts, Prog. Rept. F-9-R-16, Job I-a, 12 pp.

Zubik, Raymond J. Jr. 1983. The fishery of Hyalite Reservoir, Montana, with an evaluation of cutthroat trout reproduction in its tributaries. M.S. thesis, Mont. State Univ., 70 pp.

APPENDIX A

Examples of questionnaires

Montana Department of Fish, Wildlife & Parks

Dear Angler,

We are conducting a survey sent once a month to a random sample of Montana fishermen. These people are selected from all individuals who purchase a fishing license throughout the 1986 season. This survey provides important data to help determine fishing pressure on the lakes and streams of Montana. By providing us with this vital information, you will be assisting us in properly managing Montana's fish population.

We have chosen this random sample survey method because it would be very expensive and time consuming to monitor everyone who fishes Montana's waters. This survey requests only **your** fishing activities for a **specific period**, and all information you provide will be held in strict confidence. Because this survey is sent once a month to a random sample of license holders, there is a slight chance you may receive this survey again. If you do, please note that each survey requests your fishing activity for a different month. We appreciate your continued cooperation in returning survey information at your earliest convenience.

EVEN IF YOU DID NOT FISH OR CATCH ANY FISH, PLEASE FILL OUT AND RETURN THIS QUESTIONNAIRE.

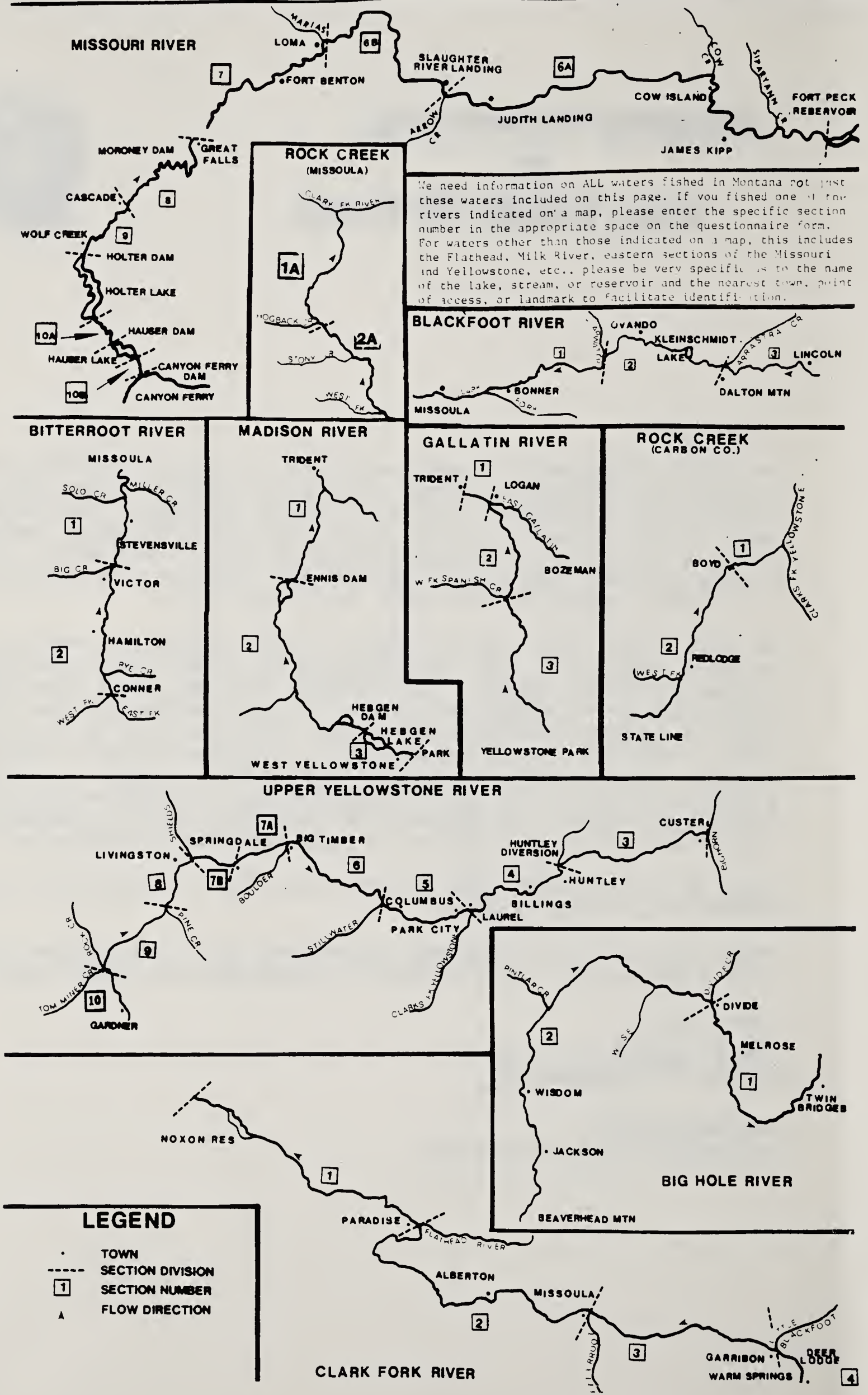
Thank you for your time and assistance. All information will be held confidential and utilized for management purposes only.

Sincerely,

Bob McFarland

Bob McFarland
Fisheries Survey Supervisor

MONTANA WATERS THAT ARE DIFFICULT TO IDENTIFY SPECIFIC SECTIONS



Montana Department of Fish, Wildlife & Parks

Dear Angler,

We recently mailed you a request for information on your fishing in Montana. As you may recall, we are conducting a survey sent once a month to a random sample of individuals selected from a list of persons with fishing licenses. This survey provides important data to help determine fishing pressure on the lakes and streams of Montana. By providing us with this vital information, you will be assisting us in properly managing Montana's fish population.

We have chosen this random sample survey method because it would be very expensive and time consuming to monitor everyone who fishes Montana's waters. This survey requests only **your** fishing activities for a **specific month** and all information you provide will be held in strict confidence. Because this survey is sent twice a month to a random sample of license holders, there is a slight chance you may receive this survey again. If you do, please note that each survey requests your fishing activity for a different month. We appreciate your continued cooperation in returning survey information at your earliest convenience.

If you have already mailed your reply, please accept our thanks and disregard this reminder.

EVEN IF YOU DID NOT FISH OR CATCH ANY FISH, PLEASE FILL OUT AND RETURN THIS QUESTIONNAIRE.

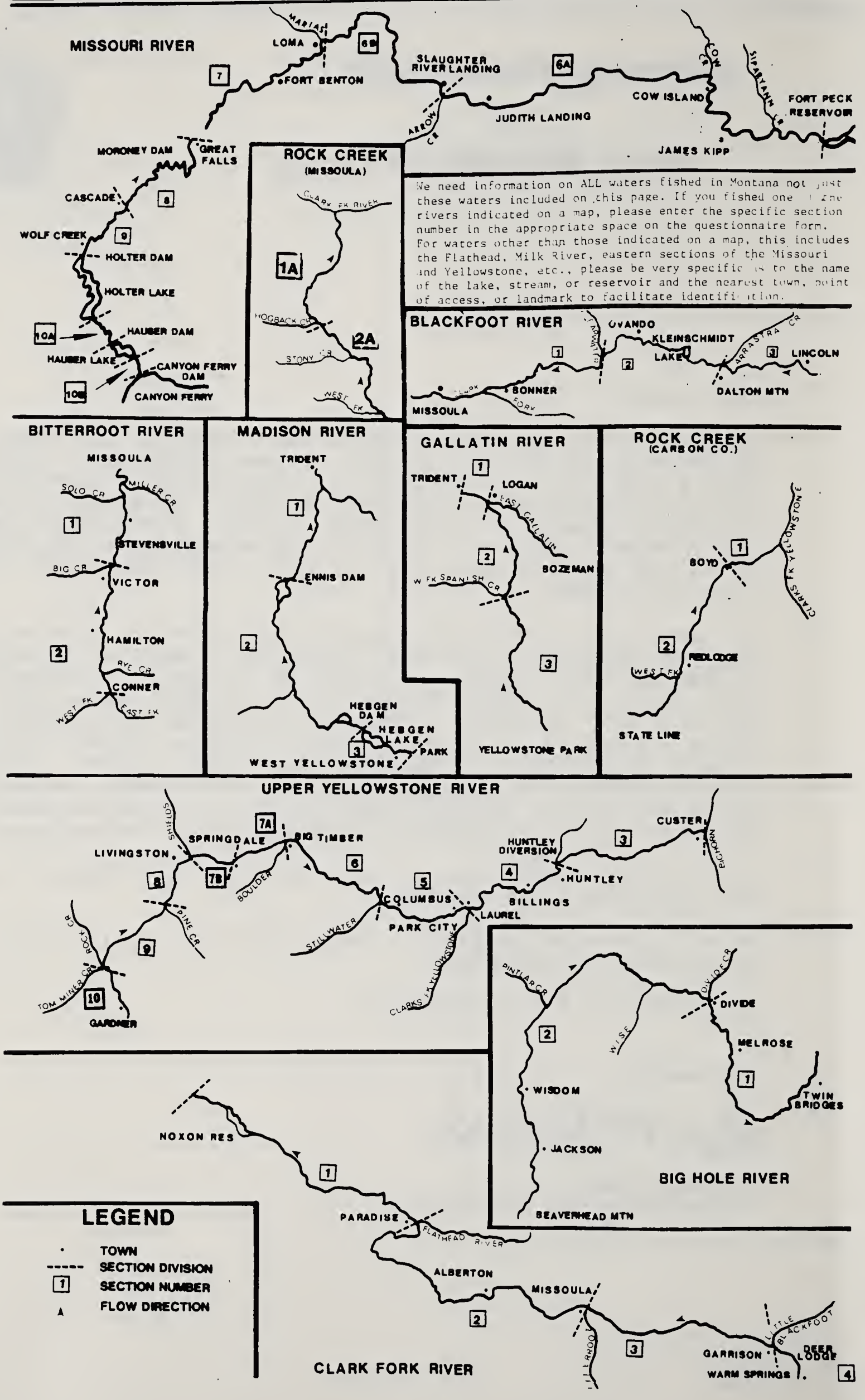
THANK YOU FOR YOUR ASSISTANCE.

Sincerely,

Bob McFarland

Bob McFarland
Fisheries Survey Supervisor

MONTANA WATERS THAT ARE DIFFICULT TO IDENTIFY SPECIFIC SECTIONS



1982

MONTANA

DEPARTMENT OF

ARKS

DEAR FISHERMAN:

WE NEED HELP IN GATHERING FISHING INFORMATIONON MONTANA'S LAKES AND STREAMS. YOU ARE ONE OF A SMALL GROUP OF REPRESENTATIVE FISHERMEN THAT WE ARE CONTACTING. PLEASE LET US KNOW WHERE YOU WENT FISHING DURING THE PERIOD LISTED BELOW.

THIS IS NOT A SURVEY TO DETERMINE HOW MANY OR WHAT KINDS OF FISH THAT YOU CAUGHT. SO, *EVEN IF YOU DID NOT FISH*, DID NOT CATCH ANY FISH, OR RELEASED THE ONES THAT YOU CAUGHT, PLEASE FILL OUT AND RETURN THE QUESTIONNAIRE. ALSO INCLUDE DAYS SPENT SNAGGING OR USING OTHER METHODS AS ALLOWED IN FISHING REGULATIONS.

THANK YOU FOR YOUR ASSISTANCE.

DID YOU FISH DURING JANUARY? [✓] YES [ ] NO

JANUARY	NAME OF LAKE OR STREAM FISHED	NEAREST TOWN OR COUNTY
SAT 1-		
SUN 2-	Goose Bay Canyon Ferry	Townsend
3-		
4-		
5-		
6-		
7-		
SAT 8-		
SUN 9-		
10-		
11-		
12-		
13-		
14-		
SAT 15-		
SUN 16-		
17-		
18-		
19-		
20-		
21-		
SAT 22-		
SUN 23-		
24-		
25-		
26-		
27-		
28-		
SAT 29-		
SUN 30-		
31-		

MONTANA

DEPARTMENT OF

FISH, WILDLIFE AND PARKS

We recently mailed you a request for information on your fishing in Montana. If you haven't mailed your reply, please take a few minutes to fill out and return this form.

It is important to *RETURN THE FORM WHETHER YOU FISHED OR NOT*.

If you have already mailed your reply, please accept our thanks and disregard this reminder.

Your help is appreciated.

DID YOU FISH DURING MAY (☒ YES ☐ NO) OR JUNE (☒ YES ☐ NO)?

05 MAY

Date	NAME OF LAKE OR STREAM FISHED	NEAREST TOWN OR COUNTY
23	Bradley's Pond	Gudeth Gap

06 JUNE

Date	NAME OF LAKE OR STREAM FISHED	NEAREST TOWN OR COUNTY
27	Bradley's Pond	Gudeth Gap

MONTANA FISH AND GAME DEPARTMENT

HELENA, MONTANA 59601

DEAR FISHERMAN:

WE NEED HELP IN GATHERING FISHING INFORMATION ON MONTANA'S LAKES AND STREAMS. YOU ARE ONE OF A SMALL GROUP OF REPRESENTATIVE FISHERMEN THAT WE ARE CONTACTING. PLEASE LET US KNOW WHERE YOU WENT FISHING DURING THE PERIOD LISTED BELOW.

THIS IS NOT A SURVEY TO DETERMINE HOW MANY OR WHAT KINDS OF FISH THAT YOU CAUGHT. SO, *EVEN IF YOU DID NOT FISH*, DID NOT CATCH ANY, OR RELEASED THOSE THAT YOU CAUGHT, PLEASE FILL OUT AND RETURN THE QUESTIONNAIRE. ALSO INCLUDE DAYS SPENT SNAGGING OR USING OTHER METHODS AS ALLOWED IN FISHING REGULATIONS.

THANK YOU FOR YOUR ASSISTANCE.

WILL YOU USE YOUR CONSERVATION LICENSE FOR FISHING? YES ☐ NO ☐

DID YOU FISH DURING NOVEMBER? (☐ YES ☐ NO)

NOVEMBER	NAME OF LAKE OR STREAM FISHED	NEAREST TOWN OR COUNTY
1-		
2-		
3-		
4-		
5-		
SAT 6-		
SUN 7-		
8-		
9-		
10-		
11-		
12-		
SAT 13-		
SUN 14-		
15-		
16-		
17-		
18-		
19-		
20-		
SAT 21-		
SUN 22-		
23-		
24-		
25-		
26-		
SAT 27-		
SUN 28-		

MONTANA

DEPARTMENT OF

FISH. WILDLIFE AND PARKS

WE RECENTLY MAILED YOU A REQUEST FOR INFORMATION ON YOUR FISHING IN MONTANA. IF YOU HAVEN'T MAILED YOUR REPLY, PLEASE TAKE A FEW MINUTES TO FILL OUT AND RETURN THIS FORM.

IT IS IMPORTANT TO *RETURN THIS FORM WHETHER YOU FISHED OR NOT*.

IF YOU HAVE ALREADY MAILED YOUR REPLY, PLEASE ACCEPT OUR THANKS AND DISREGARD THIS REMINDER.

YOUR HELP IS APPRECIATED.

WILL YOU USE YOUR CONSERVATION LICENSE FOR FISHING? ☒ YES ☐ NO

DID YOU FISH DURING APRIL? ☐ YES ☒ NO

APRIL		NAME OF LAKE OR STREAM FISHED	NEAREST TOWN OR COUNTY
	1-		
SAT	2-		
SUN	3-		
	4-		
	5-		
	6-		
	7-		
	8-		
SAT	9-		
SUN	10-		
	11-		
	12-		
	13-		
	14-		
	15-		
SAT	16-		
SUN	17-		
	18-		
	19-		
	20-		
	21-		
	22-		
SAT	23-		
SUN	24-		
	25-		
	26-		
	27-		
	28-		
	29-		
SAT	30-		

1983

MONTANA

DEPARTMENT OF

FISH, WILDLIFE AND PARKS

Dear Fisherman:

We are conducting a survey to determine the amount of fishing pressure on the lakes and streams of Montana and need your help. We would appreciate your cooperation in taking a few minutes to let us know where you went fishing by filling out the form below.

This is not a survey to determine how many or what kinds of fish that you caught. **EVEN IF YOU DID NOT FISH OR CATCH ANY FISH PLEASE FILL OUT AND RETURN THE QUESTIONAIRE.** Also include any days spent snagging or utilizing other methods of fishing as allowed in the fishing regulations.

THANK YOU FOR YOUR ASSISTANCE.

DID YOU FISH DURING AUGUST 83? ☐ **YES** ☐ **NO**

AUGUST/83 DATE	**LAKE OR STREAM FISHED**	**NEAREST TOWN OR COUNTY**

MONTANA

DEPARTMENT OF

FISH, WILDLIFE AND PARKS

Dear Fisherman:

We recently mailed you a request for information on your fishing in Montana. If you haven't mailed your reply, please take a few minutes to fill out this form.

If you have already mailed your reply, please accept our thanks and disregard this reminder.

EVEN IF YOU DID NOT FISH OR CATCH ANY FISH PLEASE FILL OUT AND RETURN THE QUESTIONAIRE.

THANK YOU FOR YOUR ASSISTANCE.

DID YOU FISH IN MONTANA DURING OCTOBER 83? ☐ **YES** ☐ **NO**

If you <u>did</u> fish in Montana during <u>October</u> 83, please fill in the following:

DATE IN OCT	LAKE OR STREAM FISHED	NEAREST TOWN OR COUNTY

MONTANA

DEPARTMENT OF

FISH, WILDLIFE AND PARKS

Dear Fisherman:

We are conducting a monthly survey sent to a random sample of people selected from a list of persons with fishing licenses. This survey provides important data to help determine fishing pressure on the lakes and streams of Montana, and we need your help. We would appreciate your cooperation by taking a few minutes to let us know where you went fishing by filling out the form below.

This is not a survey to determine how many or what kinds of fish that you caught. **EVEN IF YOU DID NOT FISH OR CATCH ANY FISH PLEASE FILL OUT AND RETURN THE QUESTIONNAIRE.** Also include any days spent snagging or utilizing other methods of fishing as allowed in the fishing regulations. Please record only your own fishing activities. All information you provide will be held in strict confidence and will be used for management purposes only. THANK YOU FOR YOUR ASSISTANCE.

DID YOU FISH IN MONTANA DURING FEBRUARY 1984? ☐ **YES** ☐ **NO**

WILL YOU USE YOUR CONSERVATION LICENSE FOR FISHING? ☐ **YES** ☐ **NO**

If you <u>did</u> fish in Montana during <u>February</u> 1984, please fill in the following:

DATE IN FEB	LAKE OR STREAM FISHED	NEAREST TOWN AND/OR POINT OF ACCESS OR LANDMARK

MONTANA

DEPARTMENT OF
FISH, WILDLIFE AND PARKS

Dear Fisherman:

We recently mailed you a request for information on your fishing in Montana. As you may recall, we are conducting a monthly survey sent to a random sample of people selected from a list of persons with fishing licenses. This survey provides important data to help determine fishing pressure on the lakes and streams of Montana. If you haven't mailed your reply, please take a few minutes to fill out this form.

If you have already mailed your reply, please accept our thanks and disregard this reminder.

EVEN IF YOU DID NOT FISH OR CATCH ANY FISH PLEASE FILL OUT AND RETURN THE QUESTIONNAIRE.

Please record only your own fishing activities. All information you provide will be held in strict confidence and will be used for management purposes only. THANK YOU FOR YOUR ASSISTANCE.

DID YOU FISH IN MONTANA DURING JANUARY 1984? ☐ **YES** ☐ **NO**

WILL YOU USE YOUR CONSERVATION LICENSE FOR FISHING? ☐ **YES** ☐ **NO**

If you <u>did</u> fish in Montana during <u>January</u> 1984, please fill in the following:

DATE IN JAN	LAKE OR STREAM FISHED	NEAREST TOWN AND/OR POINT OF ACCESS OR LANDMARK

MONTANA

DEPARTMENT OF

FISH, WILDLIFE AND PARKS

Dear Fisherman:

We are conducting a annual survey sent to a **random sample** of nonresidents. Our records indicate that you purchased a nonresident conservation license during the period of May 1, 1983, to January 31, 1984. It would be very expensive and time consuming to match your conservation license with any fishing license that you may have purchased, so we have chosen this survey method to identify anglers. This survey provides important data to help determine fishing pressure on the lakes and streams of Montana, and we need your help. Please help us by answering the following questions, even if you did not buy a fishing license.

Thank you for your assistance.

DID YOU BUY A MONTANA <u>FISHING</u> LICENSE DURING MAY 1, 1983 AND JANUARY 31, 1984? YES ☐ NO ☐

IF SO, WHAT TYPE OF LICENSE? 2 DAY PERMIT ☐ SEASON FISHING LICENSE ☐

HOW MANY 2 DAY PERMITS DID YOU BUY? _____

If you bought one or more 2 day permits, please list the months that you fished, the names of the waters, the nearest town, point of access or landmark, and how many days you fished that water.

MONTH FISHED	LAKE OR STREAM FISHED	NEAREST TOWN AND/OR POINT OF ACCESS OR LANDMARK	NUMBER OF DAYS

MONTANA

DEPARTMENT OF

FISH, WILDLIFE AND PARKS

Dear Fisherman:

We recently mailed you a request for information on your fishing in Montana. As you may recall, we are conducting an annual survey sent to a **random sample** of nonresidents. Our records indicate that you purchased a nonresident conservation license during the period of May 1, 1983, to January 31, 1984. It would be very expensive and time consuming to match your conservation license with any fishing license that you may have purchased, so we have chosen this survey method to identify anglers. This survey provides important data to help determine fishing pressure on the lakes and streams of Montana, and we need your help. Please help us by answering the following questions, even if you did not buy a fishing license.

If you have already mailed your reply, please accept our thanks and disregard this reminder. THANK YOU FOR YOUR ASSISTANCE.

DID YOU BUY A MONTANA FISHING LICENSE DURING MAY 1, 1983 AND JANUARY 31, 1984? YES ☐ NO ☐

IF SO, WHAT TYPE OF LICENSE? 2-DAY PERMIT ☐ SEASON FISHING LICENSE ☐

HOW MANY 2-DAY PERMITS DID YOU BUY? _____

If you bought one or more 2-day permits, please list the months that you fished, the names of the waters, the nearest town, point of access or landmark, and how many days you fished that water.

MONTH FISHED	LAKE OR STREAM FISHED	NEAREST TOWN AND/OR POINT OF ACCESS OR LANDMARK	NUMBER OF DAYS

1984

Montana Department of Fish, Wildlife & Parks

FISHERIES SURVEY

DID YOU BUY A MONTANA FISHING LICENSE BETWEEN MARCH 1, 1985 AND JANUARY 1, 1986? ☐ YES ☐ NO

IF SO, WHAT TYPE OF LICENSE?
☐ 2 DAY PERMIT HOW MANY 2 DAY PERMITS DID YOU BUY? _____
☐ SEASON FISHING LICENSE

DID YOU PURCHASE ANY LICENSE TO HUNT BIG OR SMALL GAME IN MONTANA BETWEEN MARCH 1, 1985 AND FEBRUARY 28, 1986? ☐ YES ☐ NO

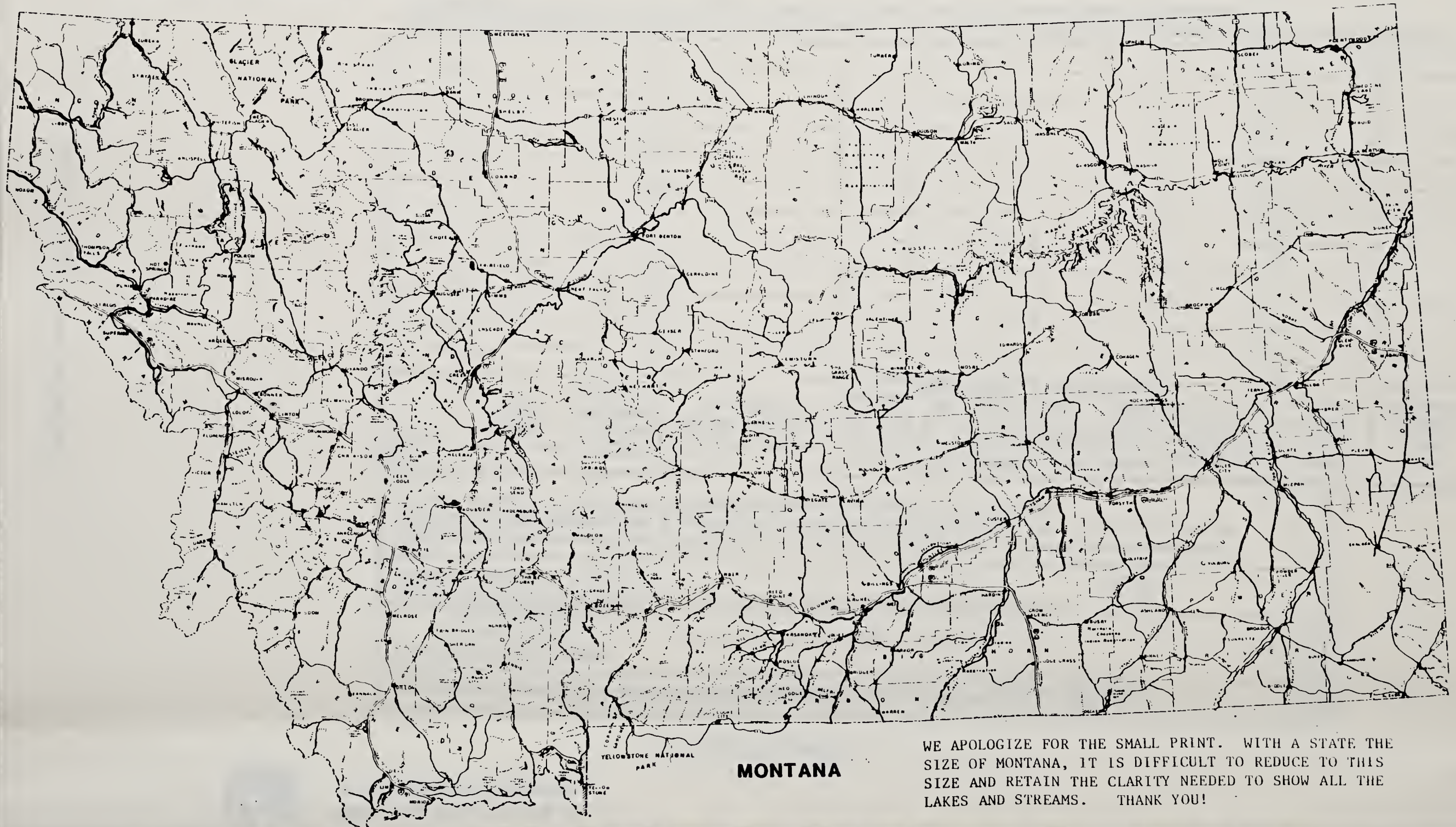
IF YOU BOUGHT ONE OR MORE 2 DAY PERMITS, PLEASE LIST YOUR FISHING ACTIVITIES, ENTERING EACH DAY AND EACH WATER FISHED ON A SEPARATE LINE. IF YOU NEED MORE SPACE, PLEASE USE A SEPARATE PIECE OF PAPER AND RETURN IT WITH THIS SURVEY. PLEASE REFER TO THE MAPS TO HELP US IDENTIFY THE WATERS FISHED.

DATE FISHED	NAME OF LAKE OR STREAM FISHED	SECTION NUMBER IF INDICATED ON MAP	NEAREST TOWN AND/ OR POINT OF ACCESS OR LANDMARK	TOTAL HOURS FISHED PER DAY	TOTAL NUMBER OF FISH CAUGHT		TOTAL NUMBER OF FISH KEPT		WAS THE MAIN PURPOSE OF YOUR TRIP TO FISH? (Y OR N)	DID YOU STAY OVERNIGHT? (Y OR N)	ROUND TRIP DISTANCE TRAVELED**
					TROUT AND SALMON	OTHER SPORT FISH*	TROUT AND SALMON	OTHER SPORT FISH*			

* SUCH AS: THE NUMBER OF WHITEFISH, WALLEYE, PERCH, BASS, ECT. ** IF YOU STAYED OVERNIGHT, PLEASE MAKE A SEPARATE ENTRY FOR EACH FISHING TRIP. THIS INFORMATION WILL BE HELD IN STRICT CONFIDENCE AND USED FOR MANAGEMENT PURPOSES ONLY.

PLEASE DO NOT REMOVE LABEL

FOR ALL WATERS THAT YOU ARE UNCERTAIN OF THE NEAREST TOWN OR LOCATION OR THE NAME IS COMMON AND CAN BE CONFUSED WITH ANOTHER SUCH AS : BEAVER CREEK, ROCK CREEK, CRYSTAL LAKE, ETC., PLEASE USE THIS MAP AND CIRCLE THE APPROXIMATE LOCATION YOU FISHED TO HELP FACILITATE IDENTIFICATION. THANK YOU !



MONTANA

WE APOLOGIZE FOR THE SMALL PRINT. WITH A STATE THE SIZE OF MONTANA, IT IS DIFFICULT TO REDUCE TO THIS SIZE AND RETAIN THE CLARITY NEEDED TO SHOW ALL THE LAKES AND STREAMS. THANK YOU!

Montana Department of Fish, Wildlife & Parks

FISHERIES SURVEY

PLEASE CHECK THE TYPE OF LICENSE YOU PURCHASED

- ☐ FISHING OR FISHING/CONSERVATION COMBINATION FOR RESIDENT OR NONRESIDENT
- ☐ SPORTSMAN
- ☐ DISABLED RESIDENT CONSERVATION
- ☐ RESIDENT CONSERVATION ONLY

IF YOU ARE A PIONEER (62 OR OLDER) OR A YOUTH (12 TO 14), DO YOU PLAN ON USING YOUR CONSERVATION LICENSE TO FISH?

☐ YES ☐ NO

DID YOU FISH IN MONTANA IN MARCH 1985

☐ YES ☐ NO

PLEASE REFER TO THE MAPS TO HELP US IDENTIFY THE WATERS YOU FISHED

DATE FISHED MARCH	NAME OF LAKE OR STREAM FISHED	SECTION NUMBER IF INDICATED ON MAP	NEAREST TOWN AND/OR POINT OF ACCESS OR LANDMARK	TOTAL HOURS FISHED PER DAY	TOTAL NUMBER OF FISH CAUGHT		TOTAL NUMBER OF FISH KEPT		WAS THE MAIN PURPOSE OF YOUR TRIP TO FISH? (Y OR N)	DID YOU STAY OVERNIGHT? (Y OR N)	ROUND TRIP DISTANCE TRAVELED **
					TROUT AND SALMON	OTHER SPORT FISH *	TROUT AND SALMON	OTHER SPORT FISH *			
ENTER EACH DAY AND EACH WATER FISHED ON A SEPARATE LINE. LIST ALL FISHING IN MONTANA, NOT JUST WATERS INDICATED ON THE MAP											
MARCH											
MARCH											
MARCH											
MARCH											
MARCH											
MARCH											
MARCH											
MARCH											
MARCH											

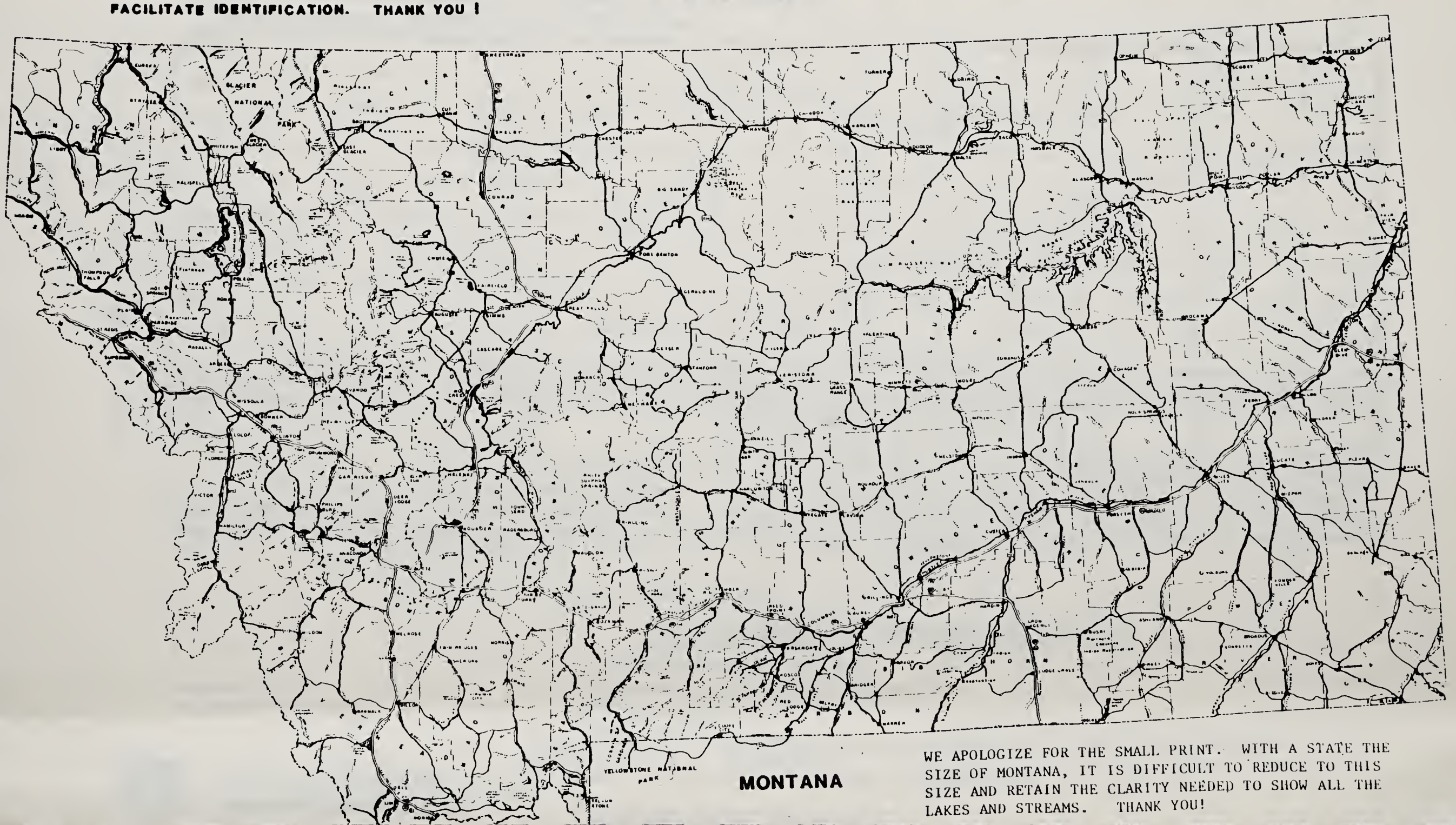
PLEASE DO NOT REMOVE LABEL

* SUCH AS: THE NUMBEROF WHITEFISH, WALLEYE, PERCH, BASS, ETC.

** IF YOU STAYED OVERNIGHT, PLEASE MAKE A SEPARATE ENTRY FOR EACH FISHING TRIP.

THIS INFORMATION WILL BE HELD IN STRICT CONFIDENCE AND WILL BE USED FOR MANAGEMENT PURPOSES ONLY

FOR ALL WATERS THAT YOU ARE UNCERTAIN OF THE NEAREST TOWN OR LOCATION OR THE NAME IS COMMON AND CAN BE CONFUSED WITH ANOTHER SUCH AS : BEAVER CREEK, ROCK CREEK, CRYSTAL LAKE, ETC., PLEASE USE THIS MAP AND CIRCLE THE APPROXIMATE LOCATION YOU FISHED TO HELP FACILITATE IDENTIFICATION. THANK YOU !



MONTANA

WE APOLOGIZE FOR THE SMALL PRINT. WITH A STATE THE SIZE OF MONTANA, IT IS DIFFICULT TO REDUCE TO THIS SIZE AND RETAIN THE CLARITY NEEDED TO SHOW ALL THE LAKES AND STREAMS. THANK YOU!

Montana Department of Fish, Wildlife & Parks

FISHERIES SURVEY

EVEN IF YOU DID NOT FISH OR CATCH ANY FISH, PLEASE FILL OUT AND RETURN THIS QUESTIONNAIRE

If you fished one of the rivers on the map (on back), please enter the specific section number in the appropriate space on the form below. For waters other than those on the map (this includes sections of the Missouri and the Flathead not shown on the map), please be very specific as to the name of the lake or stream and the nearest town, point of access, or landmark. **This information will be held in strict confidence and will be used for management purposes only.**

DID YOU FISH IN MONTANA DURING NOVEMBER 1984? ☐ YES ☐ NO
WILL YOU USE YOUR CONSERVATION LICENSE FOR FISHING? ☐ YES ☐ NO

IF YOU FISHED IN MONTANA DURING THIS PERIOD, PLEASE FILL IN THE FOLLOWING:
(PLEASE, YOUR FISHING ONLY AND FOR **NOVEMBER 1984**)
ENTER EACH DAY AND EACH WATER FISHED ON A SEPARATE LINE.

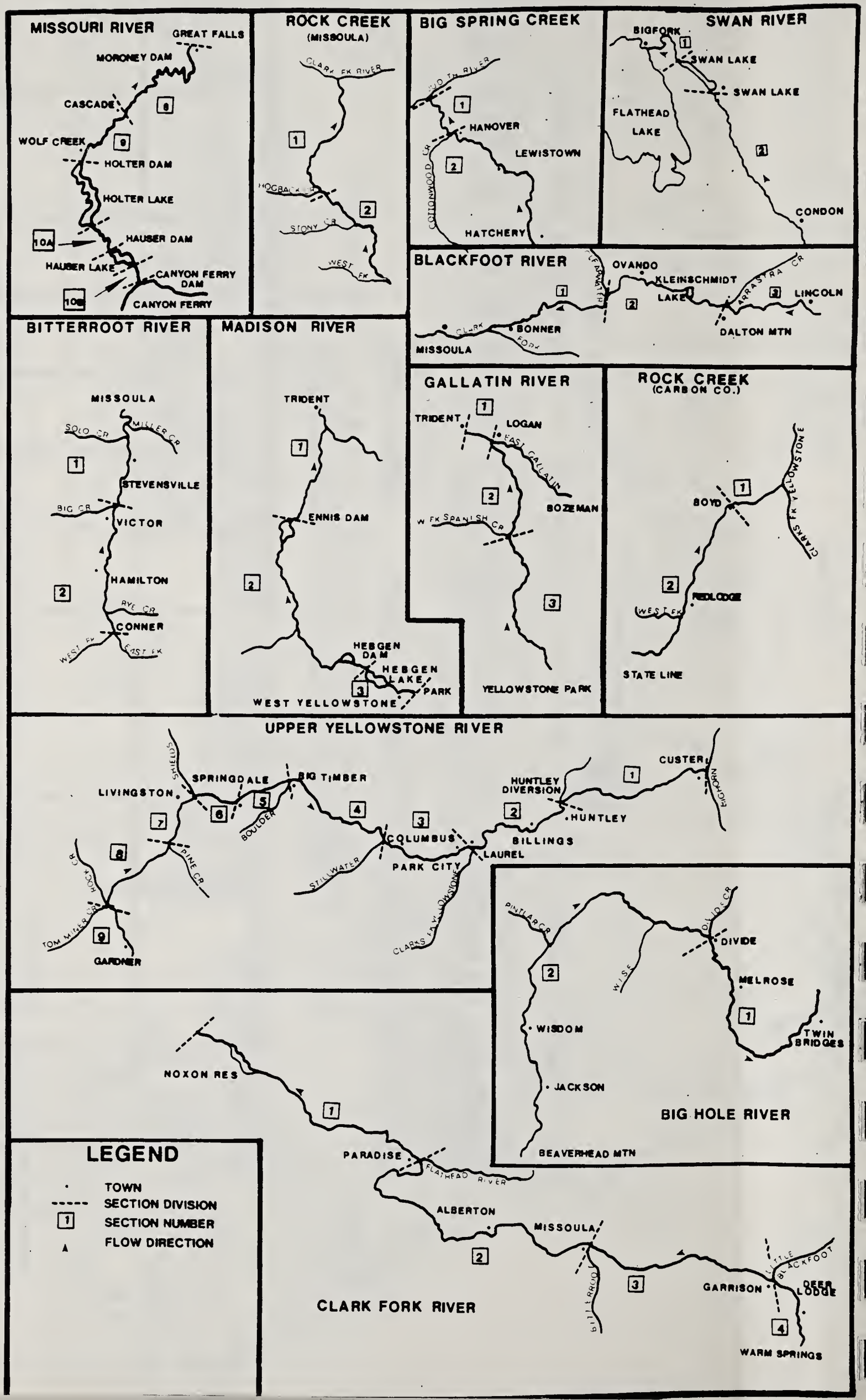
List all fishing in Montana, not just waters indicated on the map.

DATE FISHED (NOV 1ST - 30TH)	NAME OF LAKE OR STREAM FISHED	SECTION NUMBER IF INDICATED ON MAP	NEAREST TOWN AND/OR POINT OF ACCESS OR LANDMARK	TOTAL HOURS FISHED	TOTAL NUMBER OF FISH CAUGHT		TOTAL NUMBER OF FISH KEPT		WAS THE MAIN PURPOSE OF YOUR TRIP TO FISH(YorN)	DID YOU STAY OVER-NIGHT (YorN)	ROUND TRIP DIS-TANCE TRAV-ELED **
					TROUT AND SALMON	OTHER SPORT FISH*	TROUT AND SALMON	OTHER SPORT FISH*			

*SUCH AS; THE NUMBER OF WHITEFISH, WALLEYE, PERCH, BASS, ETC.

PLEASE DO NOT REMOVE LABEL

A PARTIAL DIRECTORY OF WATERS IN MONTANA



1985

Montana Department of Fish, Wildlife & Parks

FISHERIES SURVEY

EVEN IF YOU DID NOT FISH OR CATCH ANY FISH, PLEASE FILL OUT AND RETURN THIS QUESTIONNAIRE

If you fished one of the rivers on the map (on back), please enter the specific section number in the appropriate space on the form below. For waters other than those on the map (this includes sections of the Missouri and the Flathead not shown on the map), please be very specific as to the name of the lake or stream and the nearest town, point of access, or landmark. **This information will be held in strict confidence and will be used for management purposes only.**

DID YOU FISH IN MONTANA FROM OCT 16 THRU OCT 31, 1984? ☐ **YES** ☐ **NO**

IF YOU FISHED IN MONTANA DURING THIS PERIOD, PLEASE FILL IN THE FOLLOWING:
(PLEASE, YOUR FISHING ONLY AND FOR OCT 16 THRU OCT 31.)
ENTER EACH DAY AND EACH WATER FISHED ON A SEPARATE LINE.

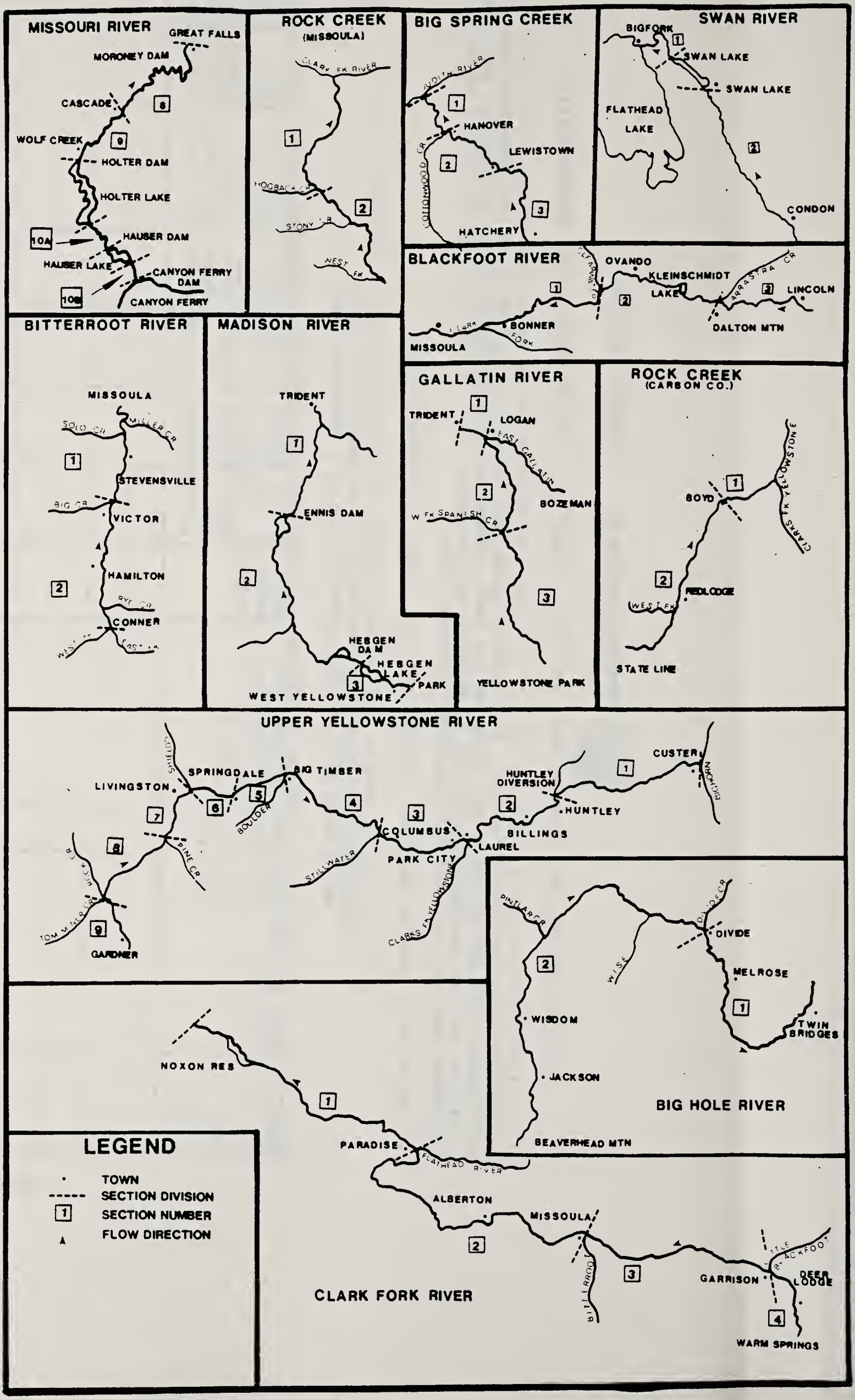
List all fishing in Montana, not just waters indicated on the map.

DATE FISHED (OCT 16TH-31ST)	NAME OF LAKE OR STREAM FISHED	SECTION NUMBER IF INDICATED ON MAP		NEAREST TOWN AND/OR POINT OF ACCESS OR LANDMARK	TOTAL HOURS FISHED	TOTAL NUMBER OF FISH CAUGHT		TOTAL NUMBER OF FISH KEPT		WAS THE MAIN PURPOSE OF YOUR TRIP TO FISH(YorN)	DID YOU STAY OVER-NIGHT (YorN)	ROUND TRIP DIS-TANCE TRAV-ELED **
						TROUT AND SALMON	OTHER SPORT FISH*	TROUT AND SALMON	OTHER SPORT FISH*			

*SUCH AS; THE NUMBER OF WHITEFISH, WALLEYE, PERCH, BASS, ETC.
**IF YOU STAYED OVERNIGHT, PLEASE MAKE ONE ENTRY FOR EACH TRIP.

PLEASE DO NOT REMOVE LABEL

RIVER and STREAM SECTION MAP



Montana Department of Fish, Wildlife & Parks

FI[illegible]IES[illegible]VEY

EVEN IF YOU DID NOT FISH OR CATCH ANY FISH, PLEASE FILL OUT AND RETURN THIS QUESTIONNAIRE

DID YOU BUY A MONTANA FISHING LICENSE DURING MARCH 1, 1984 AND FEBRUARY 28, 1985? YES ☐ NO ☒

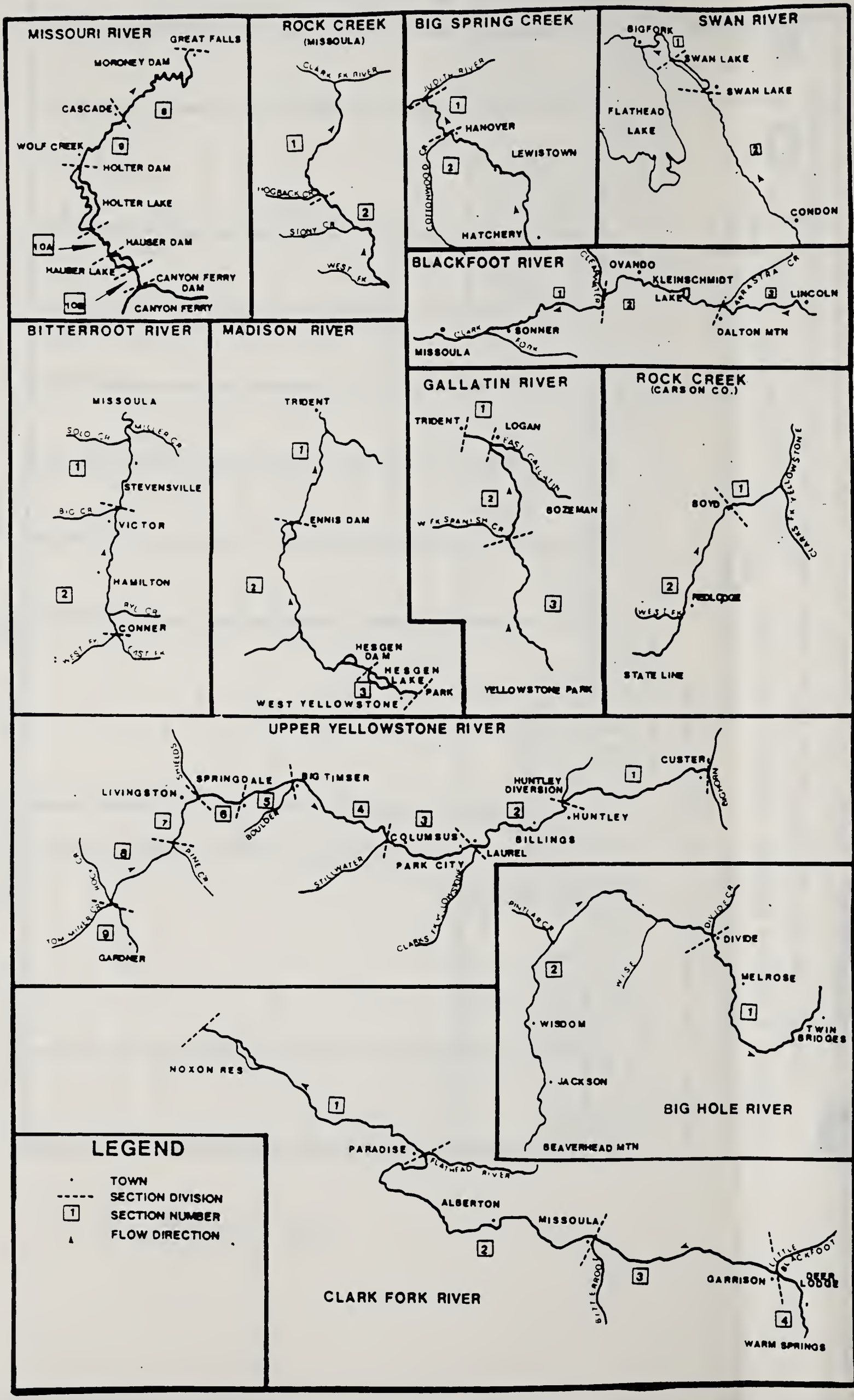
IF SO, WHAT TYPE OF LICENSE? 2 DAY PERMIT ☐ SEASON FISHING LICENSE ☐

HOW MANY 2 DAY PERMITS DID YOU BUY? —

If you bought one or more 2 DAY permits, please list your fishing activities, entering each day and each water fished on a separate line. If you need more space, please use a blank piece of paper and return it along with this survey. This information will be held in strict confidence and will be used for management purposes only.

DATE FISHED	NAME OF LAKE OR STREAM FISHED	SECTION NUMBER IF INDICATED ON MAP	NEAREST TOWN AND/OR POINT OF ACCESS OR LANDMARK	TOTAL HOURS FISHED	TOTAL NUMBER OF FISH CAUGHT		TOTAL NUMBER OF FISH KEPT		WAS THE MAIN PURPOSE OF YOUR TRIP TO FISH(YorN)	DID YOU STAY OVER-NIGHT (YorN)	ROUND TRIP DIS-TANCE TRAV-ELED **
					TROUT AND SALMON	OTHER SPORT FISH*	TROUT AND SALMON	OTHER SPORT FISH*			

A PARTIAL DIRECTORY OF WATERS IN MONTANA



CODING INSTRUCTIONS FOR MULTIPLE DESTINATION TRIPS

CODE	DESCRIPTION OF TRIP	OVER-NIGHT	ROUND TRIP	TRIP DAYS
1	1 DAY 1 SITE	N	RECORD AS IS	1
2	MULTIPLE DAY 1 SITE (2 ON FIRST DAY 9 ON REST)	Y	RECORD LARGEST MILEAGE	# DAYS
3	1 DAY MULTIPLE BUT ADJACENT SITES (ALL LAKES OR STRMS BUT NOT MIXED)	N	RECORD AS IS	1
4	MULTIPLE DAY MULTIPLE BUT ADJACENT SITES (ALL LAKE OR STREAM - NOT MIXED) CODE REST OF DAYS AS 9	Y	RECORD LARGEST CHECK ACCURACY	# DAYS
5	1 DAY MULTIPLE BUT ADJACENT SITES (DIFFERENT WATER TYPES - LAKES & STREAMS MIXED)	N	RECORD AS IS	1
6	MULTIPLE DAY - MULTIPLE BUT ADJACENT SITES (STREAMS & LAKES MIXED) CODE REST OF DAYS AS 9	Y	RECORD LARGEST CHECK ACCURACY	# DAYS
7	1 DAY MULTIPLE BUT NON-ADJACENT SITES	N	RECORD AS IS	1
8	MANY DAYS MULTIPLE BUT NON-ADJACENT SITES CODE REST OF DAYS AS 9	Y	RECORD LARGEST CHECK ACCURACY	# DAYS
9	CODE FOR SUBSEQUENT DAYS	Y	RECORD NO DISTANCE	
0	MAJOR STREAM SITE AND ADJACENT SITE RECORD REST (IF ANY) DAYS AS 9	Y/N	RECORD LARGEST	# DAYS

APPENDIX B

Boundaries of waters broken into sections

STREAM NAME		WATERCODE	BEGINNING POINT	ENDING POINT
BIG HOLE R.	SEC 01	02/0425	MOUTH	DIVIDE CR.
	SEC 02	02/0450	DIVIDE CR.	PINTLAR CR.
	SEC 03	02/0475	PINTLAR CR.	HEADWATERS
BIG SPRING CR.	SEC 01	16/0301	JUDITH RIVER	COTTONWOOD CR.
	SEC 02	16/0310	COTTONWOOD CR.	HEADWATERS
BIGHORN R.	SEC 01	22/0490	MOUTH	LITTLE BIGHORN RIVER
	SEC 02	22/0495	LITTLE BIGHORN RIVER	BIGHORN LAKE
BITTERROOT R.	SEC 01	03/0475	MOUTH	BIG CR.
	SEC 02	03/0500	BIG CR.	HEADWATERS
BLACKFOOT R.	SEC 01	04/0600	MOUTH	CLEARWATER RIVER
	SEC 02	04/0630	CLEARWATER RIVER	ARRASTRA CR.
	SEC 03	04/0660	ARRASTRA CR.	HEADWATERS
BOULDER R.	SEC 01	22/0742	MOUTH	BOULDER FALLS
	SEC 02	22/0756	BOULDER FALLS	HEADWATERS
CLARK FORK R.	SEC 01	05/1440	IDAHO BORDER	FLATHEAD RIVER
	SEC 02	05/1456	FLATHEAD RIVER	BITTERROOT RIVER
	SEC 03	06/1121	BITTERROOT RIVER	LITTLE BLACKFOOT RIVER
	SEC 04	06/1140	LITTLE BLACKFOOT RIVER	HEADWATERS
CLARKS FORK YELLOWSTONE				
	SEC 01	22/1162	MOUTH	BRIDGER
	SEC 02	22/1176	BRIDGER	WYOMING BORDER
	SEC 03	22/1190	WYOMING BORDER	HEADWATERS
CROW CR.	SEC 01	07/1000	MOUTH	LOWER CROW RESERVOIR
	SEC 02	07/1020	LOWER CROW RESERVOIR	HEADWATERS
CUTBANK CR.	SEC 01	14/1080	MOUTH	CUTBANK
	SEC 02	14/1120	CUTBANK	GLACIER PARK
FLATHEAD R.	SEC 01	07/1540	MOUTH	FLATHEAD LAKE
	SEC 02	07/1560	FLATHEAD LAKE	S.FK. FLATHEAD RIVER

STREAM NAME		WATERCODE	BEGINNING POINT	ENDING POINT
FLINT CR.	SEC 01	06/2242	MOUTH	GEORGETOWN LAKE
	SEC 02	06/4503		
GALLATIN R.	SEC 01	09/2090	MOUTH	GALLATIN RIVER
	SEC 02	09/6878	E. GALLATIN RIVER	SPANISH CR.
	SEC 03	09/6916	SPANISH CR.	HEADWATERS
HYALITE CR.	SEC 01	09/2546	MOUTH	HYALITE RESERVOIR
	SEC 02	09/6802	HYALITE RESERVOIR	HYALITE LAKE
JUDITH R.	SEC 01	16/1800	MOUTH	PLUM CR.
	SEC 02	16/1820	PLUM CR.	HEADWATERS
LITTLE BIGHORN R.				
	SEC 01	22/3654	MOUTH	LODGE GRASS CR.
	SEC 02	22/3668	LODGE GRASS CR.	HEADWATERS
LITTLE BLACKFOOT R.				
	SEC 01	06/3772	MOUTH	ELLISTON
	SEC 02	06/3591	ELLISTON	HEADWATERS
MADISON R.	SEC 01	13/3400	MOUTH	ENNIS LAKE
	SEC 02	13/3440	ENNIS LAKE	HEBGEN DAM
	SEC 03	13/3520	HEBGEN DAM	YELLOWSTONE PARK
MARIAS R.	SEC 01	14/3240	MOUTH	TIBER DAM
	SEC 02	14/3280	LAKE ELWELL	CUTBANK CR.
MILK R.	SEC 01	15/2680	MOUTH	HINSDALE
	SEC 02	15/2720	HINSDALE	MALTA
	SEC 03	15/2760	MALTA	HAVRE
	SEC 04	15/2800	HAVRE	FRESNO DAM
	SEC 05	15/2840	FRESNO DAM	CANADA
	SEC 06	15/2880	CANADA	MIDDLE/SOUTH FORKS

STREAM NAME		WATERCODE	BEGINNING POINT	ENDING POINT
MISSOURI R.	SEC 01	16/2420	N.DAKOTA BORDER	MILK RIVER
	SEC 05	16/2500	MILK RIVER	FORT PECK DAM
	SEC 06A	16/2521	FORT PECK DAM	BLAINE/CHOTEAU CTY. LINE
	SEC 06B	16/2522	BLAINE/CHOTEAU CTY LINE	MARIAS RIVER
	SEC 07	17/4864	MARIAS RIVER	MORONY DAM
	SEC 08	17/4880	MORONY DAM	CASCADE BRIDGE
	SEC 09	17/4896	CASCADE BRIDGE	HOLTER DAM
	SEC 10A	17/4913	HOLTER DAM	HAUSER DAM
	SEC 10B	17/4914	HAUSER DAM	CANYON FERRY DAM
	SEC 11	17/4928	CANYON FERRY DAM	TOSTON DAM
	SEC 12	17/4944	TOSTON DAM	HEADWATERS
MUSSELSHELL R.	SEC 01	18/4320	MOUTH	RT 3 BRIDGE NEAR LAVINA
	SEC 02	18/4350	RT 3 BRIDGE NEAR LAVINA	HEADWATERS
POPLAR R.	SEC 01	16/2820	MOUTH	E. FK. POPLAR R.
	SEC 02	16/2375	E. FK. POPLAR R.	CANADA
PRYOR CR.	SEC 01	22/4802	MOUTH	PRYOR
	SEC 02	22/4816	PRYOR	HEADWATERS
RED ROCK CR.	SEC 01	01/6140	MOUTH	LIMA DAM
	SEC 02	01/6160	LIMA RIVER	UPPER RED ROCK LAKE
	SEC 03	01/6180		
ROCK CR.	SEC 01	06/5263	MOUTH	HOGBACK CR.
	SEC 02	06/5282	HOGBACK CR.	HEADWATERS
ROCK CR.	SEC 01	22/4928	MOUTH	W.FK. (CHROME CAMP)
	SEC 02	22/4956	W.FK. (CHROME CAMP)	HEADWATERS
RUBY R.	SEC 01	01/6360	MOUTH	RUBY RESERVOIR
	SEC 02	01/6380	RUBY RESERVOIR	HEADWATERS
SHIELDS R.	SEC 01	22/5334	MOUTH	CLYDE PARK
	SEC 02	22/5348	CLYDE PARK	WILSAL
	SEC 03	22/5362	WILSAL	HEADWATERS

STREAM NAME		WATERCODE	BEGINNING POINT	ENDING POINT
SMITH R.	SEC 01	17/6816	MOUTH	HOUND CR.
	SEC 02	17/6832	HOUND CR.	HEADWATERS
STILLWATER R.	SEC 01	22/6104	MOUTH	NYE
	SEC 02	22/6118	W.FK. (NYE)	HEADWATERS
SUN R.	SEC 01	20/6050	MOUTH	MUDDY CR.
	SEC 02	20/6100	MUDDY CR.	GIBSON DAM
SWAN R.	SEC 01	07/4560	MOUTH	SWAN LAKE
	SEC 02	07/4580	SWAN LAKE	HEADWATERS
TETON R.	SEC 01	14/6000	MOUTH	CHOTEAU
	SEC 02	14/6040	CHOTEAU	HEADWATERS
THOMPSON R.	SEC 01	05/7248	MOUTH	BEND RANGER STN.
	SEC 02	05/7264	BEND RANGER STN.	HEADWATERS
TONGUE R.	SEC 01	21/1150	MOUTH	BEAVER CR.
	SEC 02	21/1200	BEAVER CR.	TONGUE R. DAM
	SEC 03	21/1250	TONGUE R. RESERVOIR	WYOMING BORDER
W.FK. STILLWATER				
	SEC 01	22/6664	MOUTH	IRON CR.
	SEC 02	22/6678	IRON CR.	HEADWATERS

STREAM NAME		WATERCODE	BEGINNING POINT	ENDING POINT
YELLOWSTONE R.	SEC 01	21/1350	N.DAKOTA BORDER	POWDER RIVER
	SEC 02	21/1400	POWDER RIVER	BIGHORN RIVER
	SEC 03	22/7001	BIGHORN RIVER	HUNTLEY DIVERSION
	SEC 04	22/7015	HUNTLEY DIVERSION	CLARKS FK. RIVER
	SEC 05	22/7028	CLARKS FK. RIVER	STILLWATER RIVER
	SEC 06	22/7043	STILLWATER RIVER	BOULDER RIVER
	SEC 07	22/7056	REED POINT	SHIELDS RIVER
	SEC 07A	22/7057	BOULDER RIVER	SPRINGDALE
	SEC 07B	22/7058	SPRINGDALE	SHIELDS RIVER
	SEC 08	22/7070	SHIELDS RIVER	TOM MINER CR.
	SEC 08A	22/7071	SHIELDS RIVER	PINE CR.
	SEC 08B	22/7072	PINE CR.	TOM MINER CR.
	SEC 09	22/7084	TOM MINER CR.	GARDINER